



RiverOak Strategic Partners

Revised Construction Environment Management Plan

TR020002/D6/2.6

Examination Document

Project Name:	Manston Airport Development Consent Order
Application Ref:	TR020002
Submission Deadline:	6
Date:	3 May 2019

RSP



RiverOak Strategic Partners

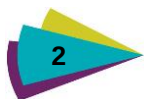
Manston Airport DCO EIA

Construction Environmental Management Plan



July 2018

Amec Foster Wheeler Environment
& Infrastructure UK Limited



Report for

George Yerrall
RiverOak Strategic Partners
Audley House
London
W1K 6WF

Main contributors

Kate Godsmark
Rachel Hicks
Martin Peirce
Mark Linsley
Liz Buchanan
Jackie Pitt
Barry Mitcheson
Steve Wright
Oliver Bewes
Colin Carter
Glyn Price
Chris Harris
Kate Duff

Issued by

.....
Rachel Hicks

Approved by

.....
Nick Hilton

Amec Foster Wheeler

Floor 12
25 Canada Square
Canary Wharf
London E14 5LB
United Kingdom
Tel +44 (0) 203 215 1610

Doc Ref. 38199-44

Copyright and non-disclosure notice

The contents and layout of this report are subject to copyright owned by Amec Foster Wheeler (© Amec Foster Wheeler Environment & Infrastructure UK Limited 2017) save to the extent that copyright has been legally assigned by us to another party or is used by Amec Foster Wheeler under licence. To the extent that we own the copyright in this report, it may not be copied or used without our prior written agreement for any purpose other than the purpose indicated in this report. The methodology (if any) contained in this report is provided to you in confidence and must not be disclosed or copied to third parties without the prior written agreement of Amec Foster Wheeler. Disclosure of that information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests. Any third party who obtains access to this report by any means will, in any event, be subject to the Third Party Disclaimer set out below.

Third-party disclaimer

Any disclosure of this report to a third party is subject to this disclaimer. The report was prepared by Amec Foster Wheeler at the instruction of, and for use by, our client named on the front of the report. It does not in any way constitute advice to any third party who is able to access it by any means. Amec Foster Wheeler excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage howsoever arising from reliance on the contents of this report. We do not however exclude our liability (if any) for personal injury or death resulting from our negligence, for fraud or any other matter in relation to which we cannot legally exclude liability.

Management systems

This document has been produced by Amec Foster Wheeler Environment & Infrastructure UK Limited in full compliance with the management systems, which have been certified to ISO 9001, ISO 14001 and OHSAS 18001 by LRQA.

Document revisions

No.	Details	Date
1	Draft 1 st Issue	March 2018
2	Final 1 st Issue	March 2018
3	Final 2 nd Issue	July 2018

Abbreviations

Abbreviation	Term
ACP	Aerospace Change Procedure
AEP	Annual Exceedance Probability
AIP	Aeronautical Information Package
ALARP	As Low as Reasonable Practicable
APU	Auxiliary Power Unit
ASAS	Airport Surface Access Strategy
ATC	Air Traffic Control
ATM	Air transport Movements
AWSI	Archaeological Watching Scheme of Investigation
BMS	Biodiversity Mitigation Strategy
BPM	Best Practicable Means
CAA	Civil Aviation Authority
CDM	Construction Design and Management Regulations
CEM	Contractor Environmental Manager
CEMP	Construction Environmental Management Plan
CPD	Contractor Project Director
CTMP	Construction Traffic Management Plan
DCO	Development Consent Order
DMP	Dust Management Plan
EA	Environment Agency
EASA	European Aviation Safety Agency
EIA	Environmental Impact Assessment
ECow	Ecological Clerk of Works
ES	Environmental Statement
FEGP	Fixed Electrical Ground Power
GHG	Greenhouse Gas
GSE	Ground Support Equipment
HGV	Heavy Goods Vehicle
KCC	Kent County Council
NE	Natural England

NGR	National Grid Reference
NPPF	National Planning Policy Framework
NSIP	Nationally Significant Infrastructure Project
OWMP	Outline Waste Management Plan
PICP	Pollution Incident Control Plan
PLO	Public Liaison Officer
PPE	Personal Protective Equipment
PRoW	Public Right of Way
PRoWMP	Public Right of Way Management Plan
RAF	Royal Air Force
RiverOak	RiverOak Strategic Partners
SHE	Safety, Health and Environment
SPZ	Source Protection Zone
SW	Southern Water
SWMP	Site Waste Management Plan
TA	Transport Assessment
TDC	Thanet District Council
UXO	Unexploded Ordnance
WWI	World War One
WWII	World War Two

Contents

1.	Introduction	6
1.1	General	6
1.2	Project Location and Site Description	6
1.3	An Overview of the Manston Airport Project	6
1.4	Objectives of the CEMP	7
1.5	Structure and Content of the CEMP	7
1.6	Accompanying Plans	9
1.7	Conformance with the Environmental Statement	10
2.	Project Team	11
2.1	Roles and Responsibilities	11
	The contractor	11
2.2	Environmental Instruction, Awareness Information and Training	13
3.	Development Construction	15
3.1	Anticipated Construction Programme	15
3.2	Working Hours	16
3.3	Construction Site Compound Preparation	16
3.4	Reinstatement of Land on Completion	16
3.5	Traffic Management During Construction	16
	Construction accesses	17
	HGV routing	17
	LGV / Cars construction trips	17
	Mitigation	17
4.	General Procedures	19
4.1	Inspections	19
4.2	Communication	20
	On-site communication	20
	External communication	21
4.3	Incident Procedure	21
	Pollution Incident Control Plan (PICP)	21
	Incident response	21
	Incident response training	22
4.4	Health and Safety	22
	Risk assessments	23
4.5	Waste Management	23
	Construction phase waste	24
4.6	Security	25
4.7	Welfare	25
4.8	Pest Control	25
4.9	Invasive Species Management	26
4.10	Unexploded Ordnance	26
4.11	Utility Works	26

4.12	Consents and Licenses	26
4.13	Legal and Other Requirements	26
5.	Environmental Management and Construction Principles	27
5.1	Objective	27
5.2	Air Quality	27
	Objective	27
	Potential effect and environmental measures	27
5.3	Biodiversity	29
	Objective	29
	Potential effect and environmental measures	29
5.4	Freshwater Environment	31
	Objective	31
	Potential effect and environmental measures	31
5.5	Historic Environment	35
	Objective	35
	Potential effect	35
	Environmental measures	35
5.6	Land Quality	36
	Objective	36
	Potential effect and environmental measures	36
5.7	Landscape and Views	40
	Objective	40
	Potential effect and environmental measures	40
5.8	Noise and Vibration	41
	Objective	41
	Potential effects and environmental measures	41
5.9	Socio-Economic	43
	Objective	43
	Potential effect and environmental measures	43
5.10	Traffic and Transport	44
	Objective	44
	Potential effect and environmental measures	44
5.11	Climate Change	45
	Objective	45
	Potential effect and environmental measures	45
5.12	Major Accidents and Disasters	46
	Objective	46
	Potential effect and environmental measures	46
6.	References	63

Table 1.1	Management Plans	9
Table 3.1	Outline Construction Programme	15
Table 4.1	Environmental Training and Communication	20
Table 4.2	Construction Materials	24
Table 5.1	Air Quality Measures to be incorporated during the Construction Phase	27
Table 5.2	Ecological Measures to be incorporated during the Construction Phase	29
Table 5.3	Freshwater Measures to be incorporated during the Construction Phase	31
Table 5.4	Historic Environment measures incorporated into the construction phase	36
Table 5.5	Land Quality Measures to be incorporated during the Construction Phase	36
Table 5.6	Landscape Measures to be incorporated during the Construction Phase	40
Table 5.7	Noise and Vibration Measures to be incorporated during the Construction Phase	42
Table 5.8	Socio-Economic Measures to be incorporated during the Construction Phase	44
Table 5.9	Environmental Measures to be incorporated for the Construction Phase	44
Table 5.10	Environmental Measures to be incorporated for the Construction Phase	45
Table 5.11	Rationale for incorporation of Environmental Measures	46
Table 5.12	Environmental Measures to be incorporated for the Construction Phase	47



Appendix A	CEMP Review Table
Appendix B	Draft of Register of Contents Legal Responsibilities
Appendix C	Emergency Contact Details Template

1. Introduction

1.1 General

- 1.1.1 This Construction Environmental Management Plan (CEMP) supports the application by RiverOak Strategic Partners (hereafter referred to as 'RiverOak') for development consent to reopen Manston Airport (the 'Proposed Development') as a new air freight cargo hub. The Proposed Development is a Nationally Significant Infrastructure Project (NSIP) under Part 3 of the Planning Act 2008¹ and therefore requires an application to be submitted for a Development Consent Order (DCO).
- 1.1.2 The environmental management of the construction works associated with the Proposed Development shall be delivered via the implementation of this CEMP. It outlines the environmental procedures that require consideration throughout the construction process in accordance with legislative requirements and construction industry best practice guidance. It aims to ensure that the adverse effects from the construction phase of the Proposed Development, on the environment and local communities, are minimised.
- 1.1.3 Environmental management measures associated with the operation of the Proposed Development shall be delivered via the implementation of a separate Operational Environmental Management Plan (OEMP). The only mitigation measures related to the operation of the Proposed Development included in this CEMP are those which are relevant to parts of the Proposed Development which will be operational before construction is completed.
- 1.1.4 The final CEMP will be implemented by RiverOak secured through the requirements of the DCO. This is a working document and revisions to this CEMP may be undertaken during the examination of the DCO Application.
- 1.1.5 The appointed contractor shall be responsible for safeguarding the environment and for mitigating the effects of the construction works by implementing general environmental requirements of the CEMP. RiverOak will ensure that the contractor(s) complies with the CEMP via contractual arrangements.

1.2 Project Location and Site Description

- 1.2.1 The Site, covering an area of approximately 296ha is on the existing site of Manston Airport, Kent, centred at National Grid Reference (NGR) 633173, 165710.
- 1.2.2 Presently, it comprises a combination of existing buildings and hardstanding, large expanses of grassland and some limited areas of scrub and/or landscaping. This includes the 2,748m long, 60m wide runway, which is orientated in an east-west direction across the southern part of the Site. The existing buildings are clustered along the east and north-west boundaries of the site.
- 1.2.3 The northern part of the Site is bisected by the B2050 (Manston Road), bounded by the A299 dual carriageway to the south and the B2190 (Spitfire Way) to the west. The existing site access is from the junction of the B2050 with the B2190.

1.3 An Overview of the Manston Airport Project

- 1.3.1 The Proposed Development involves the re-development of the existing Manston Airport into a dedicated air freight facility, which also offers passenger, executive travel and aircraft engineering services. It is expected to lead to an increase in airport capacity of at least 10,000 air transport movements (ATMs) of cargo aircraft than currently provided. As the Proposed Development is a NSIP, the application for development is undertaken as a DCO Application submitted to the Planning Inspectorate and decided by the Secretary of State.
- 1.3.2 Works to be undertaken consist of the following:

- ▶ Upgrade of Runway 28/10 to allow CATII/III operations;
- ▶ Realignment of the parallel taxiway;
- ▶ Construction of 19 EASA compliant Code E stands for air freight aircraft;
- ▶ Installation of new high mast lighting for aprons and stands;
- ▶ Construction of 65,500m² of cargo facilities;
- ▶ Construction of a new Air Traffic Control (ATC) tower;
- ▶ Construction of a new airport fuel farm;
- ▶ Existing fire station refurbishment/replacement;
- ▶ Complete fit-out of airfield navigational aids (nav-aids);
- ▶ Construction of new aircraft maintenance hangars;
- ▶ Development of the 'Northern Grass Area' for airport related business development;
- ▶ Demolition of the redundant 'old' ATC Tower;
- ▶ Safeguarding of existing facilities for museums on the site;
- ▶ Highway improvement works, both on and off-site; and
- ▶ Extension of passenger service facilities including an apron extension to accommodate an additional aircraft stand and doubling of the current terminal size.

1.4 Objectives of the CEMP

1.4.1 This CEMP provides an overarching framework for the environmental management procedure during the construction phase of the Proposed Development.

1.4.2 The objectives of the CEMP are as follows:

- ▶ To provide a mechanism for ensuring the delivery of environmental measures (other than those which will be secured through specific requirements of the DCO), to avoid, reduce or compensate for environmental effects identified in the Environmental Statement (ES);
- ▶ To provide an outline of the content that will be supplied in the detailed plans and schemes prior to construction of the relevant stage of works;
- ▶ To ensure compliance with legislation and identify where it will be necessary to obtain authorisation from relevant statutory bodies;
- ▶ To provide a framework for compliance auditing and inspection to ensure the agreed environmental aims are being met; and
- ▶ To ensure a prompt response to any non-compliance with legislative and DCO. Requirements, including reporting, remediation and any additional mitigation measures required to prevent a recurrence.

1.5 Structure and Content of the CEMP

1.5.1 The remainder of this CEMP is split into five further chapters:

1.5.2 **Chapter 2** describes the roles and responsibilities of those on site.

1.5.3 **Chapter 3** describes the Proposed Development construction, inclusive of:

- ▶ Construction programme;

- ▶ Working hours;
- ▶ Site compounds;
- ▶ Re-instatement of land; and
- ▶ Traffic management.

1.5.4 **Chapter 4** describes inspections, incident procedures and the general principles that will be adopted on the construction site. The general site operations cover the following elements:

- ▶ Inspections;
- ▶ Communication (on-site and external);
- ▶ Incident procedure;
- ▶ Health and safety;
- ▶ Waste management;
- ▶ Security;
- ▶ Welfare;
- ▶ Pest control;
- ▶ Invasive species management;
- ▶ Unexploded ordnance;
- ▶ Utility works;
- ▶ Consents and licences; and
- ▶ Legal and other requirements.

1.5.5 **Chapter 5** describes the environmental measures that will be adopted during the construction of the Proposed Development in accordance with the ES. The environmental measures will be implemented to avoid, reduce or compensate for effects on receptors identified in the following environmental topics:

- ▶ Air quality;
- ▶ Biodiversity;
- ▶ Freshwater environment;
- ▶ Historic environment;
- ▶ Land quality
- ▶ Landscape and visual impact;
- ▶ Noise;
- ▶ Socio-economic;
- ▶ Traffic and Transportation;
- ▶ Climate Change; and
- ▶ Major Accidents and Disasters.

1.5.6 This document is classified as a 'live document' and as such is required to be updated by the Contractor prior to the commencement of any construction related works or activities. An example CEMP Review Table is located within **Appendix A** of this report. Updates will take account of the following aspects:

- ▶ Changes to the design;
- ▶ Changes to external factors, including legislation;
- ▶ Unforeseen circumstances;
- ▶ Results from external audits and inspections; and
- ▶ Learning points from environmental near misses and incidents.

1.6 Accompanying Plans

1.6.1 The CEMP is accompanied by the plans and strategies shown in **Table 1.1**, which will either be submitted as part of the DCO application or follow on post submission:

Table 1.1 Management Plans

Plan/Strategy	Description	Responsible Party	Timeline
Emergency Plan	Details the incident alerting procedures and the initial action responsibilities for airport staff.	TBC	Post DCO consent
Dust Management Plan	Outlines appropriate management techniques that will reduce the potential for any dust-related adverse effect to public health or the environment.	The client (as agreed)	Post DCO consent
Outline Drainage Strategy	A report into how surface water, usually caused by rain, affects a site and the surrounding area.	Wood	For DCO submission
Emergency Response and Post-Crash Management Plan	Consolidated reference and action document for use of personnel in the event of a major incident or emergency.	The client / contractor (as agreed)	Post DCO consent
Pollution Incident Control Plan (PICP)	For use by all company personnel for the identification, notification, containment and clean-up of all spillages, both inside and externally of a building or on the airfield.	The client / contractor (as agreed)	Post DCO consent
Training Plan	Outlines details concerning the formal training that will be undertaken by all those on site. It will outline the objectives, needs and strategy.	The client / contractor (as agreed)	Post DCO consent
Construction Traffic Management Plan	Site specific plan that covers the design, implementation, maintenance and removal of any temporary traffic management measures on the surrounding road network while work or activity is carried out on a construction site.	Wood	For DCO submission
Travel Plan	A long-term management strategy for integrating proposals for sustainable travel into the planning process.	Wood	For DCO submission
Surface Access Strategy	This sets out how the airport will improve and encourage all the different ways that passengers,	Wood	For DCO submission

Plan/Strategy	Description	Responsible Party	Timeline
	staff and goods get to and from the airport and beyond.		
Car Park Strategy	Summarises the car parking requirements at the Proposed Development and the proposals.	Wood	For DCO submission
Public Rights of Way Management Strategy	Addresses the interactions between the Public Rights of Way (PRoW) and the Proposed Development, during the Construction phase.	Wood	For DCO submission
Wildlife Hazard Management Plan	Procedure to assess and manage the wildlife hazards on and in the vicinity of the aerodrome.	The client (as agreed)	Post DCO consent
Habitat Management Plan	Manage the habitat on the airport site in order to reduce the risks for bird strike.	The client (as agreed)	Post DCO consent
Outline Waste Management Plan (OWMP)	A strategy and action plan for the management of waste which is likely to arise during the construction phase of the proposed development.	RPS	Post DCO consent
Scheme of Investigation (AWSI)	Details the strategy and mitigation measures to be used to limit the impact on existing users of the public highway network.	Wood	Post DCO consent
Safety Health and Environment (SHE) Plan	Details relevant safety, health and environmental information relating to all land within the construction site.	Contractor's Health and Safety Advisor (as agreed with the client)	Post DCO consent
Communications Plan	A plan which formally defines who should be given specific information, when that information should be delivered and what communication channels will be used to deliver that information.	Contractor's Public Liaison Officer (as agreed with the client)	Post DCO consent

1.7 Conformance with the Environmental Statement

- 1.7.1 An Environmental Impact Assessment (EIA) has been undertaken for the Proposed Development. An ES has been prepared in accordance with the *Infrastructure Planning (EIA) Regulations 2017* (the 2017 Regulations)². The ES includes assessments of the likely significant effects on the environment that are likely to be caused during the construction and operation phases of the Proposed Development.
- 1.7.2 This CEMP has been prepared in accordance with the environmental measures identified in the ES (**Chapters 6-17**) and supporting documentation to avoid, reduce or compensate for the adverse effects of the Proposed Development on the environment during construction.

2. Project Team

2.1 Roles and Responsibilities

- 2.1.1 Establishing roles and responsibilities on site is important to ensure the successful construction of the Proposed Development, including the implementation of the CEMP. This Chapter provides further details on the roles and responsibilities of key members of the Project Team.
- 2.1.2 To ensure that all the environmental commitments for the construction works are met, it is important to ensure that the roles of staff are clearly set out and that prior to, and throughout the works, they are made aware of the environmental sensitivities and commitments that are required to be adhered to.

The contractor

- 2.1.3 The contractors will be responsible for implementing the CEMP through contractual agreements with RiverOak.
- 2.1.4 Prior to each stage of construction commencing, the contractors will prepare or update the management plans listed in this CEMP.
- 2.1.5 The contractor will prepare and update the site Safety Health and Environment (SHE) Plan, which details relevant safety, health and environmental information relating to all land within the construction site.
- 2.1.6 The contractor will prepare a list of Contractors Proposals, which will detail all the environmental mitigation measures for each stage of the works that will be implemented. The Contractors Proposals will be in accordance with the CEMP.
- 2.1.7 The plans will be made available to all persons working on the Proposed Development.
- 2.1.8 Environmental issues that arise during the construction of the Proposed Development will be reviewed at the inaugural and subsequent regular meetings held by the contractor. Daily toolbox talks will be held by the contractor to inform the construction staff of any environmental issues and any changes to the CEMP, Contractors Proposals and/or the Safety, Health and Environmental (SHE) Plan. The contractor is responsible for any sub-contractors they employ.

Contractor Project Director

- 2.1.9 It is to be the responsibility of the Contractor Project Director (CPD) to ensure that adequate resources are made available to the Project Team so that the environmental policy is effectively implemented during the construction phase. The CPD will sign the Policy Statement confirming the commitment of the Project Team to ensure that all environmental aspects are managed in accordance with relevant legislative and contractual requirements, and environmental commitments detailed in the CEMP.

Contractor Environmental Manager

- 2.1.10 The Contractor Environmental Manager (CEM) is responsible for ensuring all environmental standards and commitments are adhered to throughout the construction design, implementation, maintenance and monitoring periods of the Proposed Development.
- 2.1.11 The CEM will also be responsible for the following:
- ▶ Developing and reviewing the CEMP and specialist procedures;
 - ▶ Leading the appointment and management of environmental specialists at the construction stage;

- ▶ Facilitating environmental training and inductions to the workforce, as required;
- ▶ Monitoring compliance of construction activities with the CEMP / environmental legislation and licences;
- ▶ Acting as the focal point of contact for all environmental issues on site;
- ▶ Convening and chairing environmental team meetings and meetings of external consultees; and
- ▶ Providing such advice as is required by the Contractor's Project Director on environmental issues.

2.1.12 The CEM will also record and report on all environmental activities on the project. They will monitor and supervise construction activities where appropriate, maintain auditable environmental records and conduct audits as required by the CEMP and offer full time presence on site throughout the construction period.

Environmental Advisor

2.1.13 The Environmental Advisor will be responsible for taking the Proposed Development through the environmental aspects of the statutory process and aid the development of the CEMP in liaison with the specialist advisors. The Environmental Advisor will provide advice and assistance as necessary throughout the construction process.

Environmental Clerk of Works

2.1.14 The Environmental Clerk of Works shall be responsible for recording and reporting all environmental works, the maintenance of related records, attendance at any environmental incidents on site and reporting to the CEM.

Public Liaison Officer

2.1.15 The primary role of the Public Liaison Officer (PLO) is conducting all public liaison associated with the construction phase of the Proposed Development.

2.1.16 The responsibilities and duties of the PLO include the following:

- ▶ Responsible for the dissemination of the construction programme to all relevant parties, including any work generating high levels of noise, traffic disruption etc.;
- ▶ Acting as first point of contact for members of the public;
- ▶ Ensure that all local residents and stakeholders are kept informed of progress and key issues;
- ▶ Maintain a register of queries and complaints from the public which will inform the day to day construction activities;
- ▶ Responding to queries, responding to complaints and resolving concerns in addition to informing the project manager as and when complaints are received; and
- ▶ Production of newsletters / bulletins / social media upon a regular basis to raise awareness of current issues both within the project team and throughout the local community.

Site Health and Safety Advisor

2.1.17 The Site Health and Safety Advisor's main aim is to prevent accident, injuries and work-related illnesses on site. They shall implement health and safety policies in accordance with the latest legislation.

2.1.18 They will be responsible for the following tasks, as well as all responsibilities detailed in the Health and Safety Executive guidance *Health and safety in construction*:

- ▶ Take overall responsibility for compliance with all health and safety requirements at the site and for achieving the required levels of health and safety performance;
- ▶ Take responsibility for implementation and management of emergency response procedures, while ensuring health and safety roles are being enacted in accordance with the requirements of this procedures and in line with best industry practice;
- ▶ Ensure health and safety roles are provided with suitable environmental awareness training and provision of any specialist environmental training required generally to carry out their roles;
- ▶ Ensuring work is undertaken in a safe manner and machinery is used in accordance with manufactures guidance;
- ▶ Ensuring that the contractor and their associated employees work in accordance with approved risk assessments;
- ▶ Undertake regular (e.g. daily) checks to ensure that the site is tidy and secure;
- ▶ Provide health and safety toolbox talks to site employees upon a regular basis (e.g. weekly);
- ▶ Reviewing implemented health and safety procedures and where appropriate amending procedures. These reviews will be recorded; and
- ▶ Reporting and recording any incidents or near misses.

Ecological Clerk of Works

- 2.1.19 An Ecological Clerk of Works (ECoW) will be appointed to oversee construction works in ecologically sensitive locations and at site establishment preparatory to construction activities including any site clearance.

Environmental Specialists

- 2.1.20 A team of experts will be employed and utilised to support the Project Team on specific issues as and when required. They will undertake pre-construction surveys and watching briefs, and oversee implementation, maintenance and monitoring throughout the contract period.

2.2 Environmental Instruction, Awareness Information and Training

- 2.2.1 All the staff in the contractor's environmental team will be suitably trained for their roles, regarding competency requirements, environmental awareness and maintenance of training records, in order to meet the environmental commitments, set out in the CEMP.
- 2.2.2 A project specific training plan that identifies the competency requirements for all personnel allocated with environmental responsibilities must be produced and must be contained within the final CEMP. The training plan will aim to cover the following aspects:
- ▶ Site induction for all personnel covering the appropriate environmental aspects applicable to the development site;
 - ▶ Emergency preparedness and response;
 - ▶ Toolbox talk sessions covering relevant and topical issues associated with the development being undertaken. These will be completed at least monthly for existing site members and additionally completed when new personnel enter the site; and
 - ▶ Any specific training requirements associated with particular roles. If required, then subsequent training will cover aspects which are required to comply with commitments and general good practice outlined within this report.
- 2.2.3 Training for all personnel identified in the training plan will be completed before commencement of the associated construction activities. The contractor shall ensure that all personnel engaged in



activities that may have an impact on the environment are competent to carry out their duties or, where necessary, arrange for suitable training to be undertaken.

3. Development Construction

3.1 Anticipated Construction Programme

- 3.1.1 The submission of the Development Consent Order (DCO) application is planned for the first quarter of 2018 following an additional period of statutory consultation under section 42 of the *Planning Act 2008*³. Based on this programme and the anticipated determination period, the DCO may be granted in Q2 2019 and this timescale has been assumed when developing the construction/operational programme.
- 3.1.2 The construction of the Proposed Development will occur over four separate phases, as detailed in **Table 3.1** below.
- 3.1.3 The initial phase of construction, following the grant of the DCO, will be the shortest with an expected duration of 12 months. This phase will see a number of different construction activities undertaken in order to ensure that the airport is returned to operational use in Year 2. Phases 2 - 4 of the construction process will be demand led and as such could be shorter or longer in duration than the time periods indicated below. These later phases will take place whilst the airfield is operational and will focus on delivering the increased infrastructure and facilities required to meet the demand of the air freight and passenger forecasts.

Table 3.1 Outline Construction Programme

Component	Start Date	End Date	Works Associated with Phase
Granting of DCO	Q2 2019	n/a	n/a
Construction Phase 1	Q3 2019	Q4 2020	The existing runway will be resurfaced, and a new parallel taxiway will be constructed. Earthworks undertaken. Eight cargo aircraft stands and a 12,000m ² cargo facility will be constructed. The existing passenger facilities will be reopened and the new fuel farm constructed. The drainage network and associated attenuation ponds will be constructed to ensure surface waters are treated will also be implemented in Phase 1.
Construction Phase 2	Q4 2020	2023	As the airport will be operational by Phase 2, this will constrain construction activities. To minimise disruption to operations, construction will be limited to the provision of additional aircraft stands, cargo warehousing and the extension of the associated lorry and car park facilities and additional earthworks. A new aircraft maintenance hangar will be constructed and the existing hangar demolished.
Construction Phase 3	2023	2030	Further aircraft cargo aprons and warehousing will be constructed plus the associated lorry and car parking. An additional aircraft maintenance hangar will also be provided. Existing buildings adjacent to Spitfire Way will be demolished (cargo buildings and the MT facility). The internal access road will be constructed in its permanent alignment.

Construction Phase 4	2030	2036	The remaining stands and warehousing will be constructed. An additional aircraft passenger stand will be constructed next to the existing passenger apron. A further maintenance hangar will also be provided.
-----------------------------	------	------	--

3.2 Working Hours

- 3.2.1 During Phase 1, the Proposed Development programme assumes a six-day working week, with construction confined to the hours of 07:30 to 17:30 Monday to Friday and Saturday 07:30 to 13.00. There is no planned working on Sundays or Bank Holidays.
- 3.2.2 The above hours may be subject to seasonal variations and dictated by the construction activity being undertaken and prevailing weather conditions. For example, the typical working day in the summer months could be 07.00 to 19.00, while during the winter months this may shift to 08.00 to 16.00.
- 3.2.3 During Construction Phases 2 - 4, when the airport would also be operational, construction may need to take place outside of the above hours, including during the evening and at night. These additional time periods have been taken into account in the assessment of noise impacts with appropriate mitigation measures proposed where necessary.
- 3.2.4 The above hours are also outside of those commonly applied throughout the UK. Consequently, hours will need to be agreed with the local authority. Working hours can be formally agreed via:
- ▶ The submission of an application for consent under section 61 of the *Control of Pollution Act 1974*; or
 - ▶ The local authority can serve a notice specifying such works under section 60 under the *Control of Pollution Act 1974*. Works outside the above hours can be agreed through the submission of a variation and dispensation detailing associated justifications.

3.3 Construction Site Compound Preparation

- 3.3.1 Compound areas will comprise offices, welfare facilities, vehicle parking and material storage areas, which will be located within the airport boundary. During Construction Phase 1, a construction compound, storage and working area would be established on an area of existing concrete hardstanding, near to the new access on B2190 (Spitfire Way). The area will be kept clean and tidy and equipped with spill clean-up kits. The existing airport hangars and buildings located in this area would be utilised for storage and office space to reduce the need for any temporary site cabins or facilities.
- 3.3.2 For subsequent construction phases (Phases 2 - 4), which will require a much smaller compound area, a site compound is proposed in the south east of the site.

3.4 Reinstatement of Land on Completion

- 3.4.1 Any land temporarily acquired to be used for the construction of the Proposed Development will be reinstated in accordance with requirements of the DCO.

3.5 Traffic Management during Construction

- 3.5.1 Construction traffic management is outlined in the Traffic Management Plan (**Volume 15 of the Environmental Statement (ES)**).
- 3.5.2 A summary of the key routing measures that will be implemented are detailed below.

Construction accesses

- 3.5.3 Construction accesses will be the same locations as the permanent junctions to serve the Proposed Development. Construction vehicles will leave and enter the wider road network via five proposed access points:
- ▶ Northern Grass Area West Access – Redesigned standard priority junction with ghost right turn facility with Manston Road;
 - ▶ Northern Grass Area South Access – New signalised junction with Manston Road;
 - ▶ Cargo Access – New Roundabout junction with Spitfire Way;
 - ▶ Airport Terminal Access – Redesigned access now as a signalised junction with Manston Road; and
 - ▶ Fuel Farm Access – No change to the layout of the existing access as already capable of accommodating the Construction and Operational trips required.

HGV routing

- 3.5.4 The proposed route is from the A299 to the main construction sites. Construction traffic HGVs would leave the A299 at the Minster Roundabout and travel North on Minster Road. At the next roundabout traffic would turn right onto B2190 and follow it a short distance to a roundabout junction with Columbus Avenue. Construction HGVs would route ahead at this junction and follow the B2190 Spitfire Way and either access the site via the Cargo access or continue to the next junction with Manston Road and follow appropriate routes to the other three accesses in this location.

LGV / Cars construction trips

- 3.5.5 It is acknowledged that controlling these vehicles is more difficult, however, within the mitigation schemes set out below driver packs will be provided to all staff and this will include information regarding roads to avoid. A list of roads has been identified as being restricted to light goods vehicles which is detailed within the Traffic Management Plan (**Volume 15 of the Environmental Statement**).

Mitigation

- 3.5.6 As part of the Traffic Management Plan, a number of mitigation measures have been proposed to manage the following:
- ▶ Access;
 - ▶ Working hours;
 - ▶ Preferred construction routes for all vehicle trips;
 - ▶ Timing of deliveries;
 - ▶ Temporary traffic signage;
 - ▶ Vehicle identification;
 - ▶ HGV emissions;
 - ▶ The requirement for banksman at accesses;
 - ▶ Vehicle/wheel washing;
 - ▶ Temporary traffic management procedures;
 - ▶ Information packs and communications;

- ▶ Sustainable staff travel;
- ▶ Highway condition survey; and
- ▶ Public Rights of Way.

3.5.7

By implementing the proposed mitigation measures, this will reduce any potential impact of the movement of construction traffic in the highway network. Further information on these measures can be located within Section 6 of the Traffic Management Plan.

4. General Procedures

4.1 Inspections

- 4.1.1 Inspections of the site shall occur to ensure compliance with the CEMP and to minimise the risk of damage to the environment. All environmental incidents shall be reported to the CEM.
- 4.1.2 The contractor will undertake daily inspections, which will include monitoring conformance with the CEMP. Daily assessment forms of environmental performance will be completed during the daily checks; these will be measured against environmental standards, relevant legislation and the CEMP objectives.
- 4.1.3 Checks on equipment will be undertaken to reduce the risk of incidents occurring (for example oil leaks). As a minimum, the following equipment will be inspected:
- ▶ Fencing;
 - ▶ Waste storage facilities;
 - ▶ Soil management;
 - ▶ Oil separators;
 - ▶ Chemical storage facilities;
 - ▶ Bund integrity;
 - ▶ Foul water storage facilities;
 - ▶ Silt traps;
 - ▶ Drainage ditches and watercourses;
 - ▶ Storage vessels (including pumps, gauges, pipework and hoses);
 - ▶ Secondary containment (for example, secondary skins for oil tanks);
 - ▶ Spill response materials; and
 - ▶ Equipment with potential to leak oils and other liquids, for example, compressors and transformers.
- 4.1.4 Sensible monitoring inspections will be undertaken by the contractor and their appointed Health, Safety Security and Environment (HSSE) auditors to ensure the daily checks are being undertaken correctly.
- 4.1.5 The inspections will also include:
- ▶ Reviewing the daily risk assessment forms;
 - ▶ Ensuring that faults and defects are identified and rectified; and
 - ▶ Providing data for performance monitoring.
- 4.1.6 Environmental performance data will be collected and collated into the SHE Plan. The plan will present a set of rules for manufacturing health, safety, and environmental activities.
- 4.1.7 The CEM shall produce a monthly report detailing environmental performance and non-compliances. Document control shall be in accordance with a Quality Management Strategy to be developed by the appointed contractor. Copies of all environmental audit reports, consents and licences shall be maintained by the contractor.

- 4.1.8 The contractor shall be responsible for assigning responsibility, investigating and addressing any non-conformances raised by any inspection with an agreed time frame and ensuring that corrective and preventative actions have been fully closed out.
- 4.1.9 RiverOak's and the contractors' monitoring reports will be made available to statutory and non-statutory bodies on request. Where specific environmental management and reporting is required it will be set out in the relevant management plans.

4.2 Communication

On-site communication

- 4.2.1 In order to ensure that environmental issues are communicated on site the following environmental training and on-going communication methods will be carried out. The list in **Table 4.1** is not exhaustive.

Table 4.1 Environmental Training and Communication

Training / Briefing	Frequency	Attendees
Induction Training	On first visit to site	All individuals attending site
Risk Assessment Briefing	Every job task	Those involved in the task
Environmental Toolbox Talks	Once per month	All individuals undertaking work on site
Environmental Briefings	As required	All individuals undertaking work on site
Job Specification Training (e.g. IOSH Working with Environmental Responsibilities, Site Waste Management etc.)	As required	All individuals with environmental responsibilities
Project specific information (inclusive of this CEMP)	As required	All individuals on site briefed and information displayed on site notice boards

- 4.2.2 The CEM shall advise the contractor's Project Manager on external communication with regulatory bodies, the public and any other external stakeholders on environmental matters.
- 4.2.3 The Contractor must communicate to the employers and any sub-contractors employed on the site the following:
- ▶ Details and arrangements of any audits or inspections undertaken;
 - ▶ Details, inclusive of relevant statistics, of environmental incidents and near misses;
 - ▶ Details of any pending and current enforcement action in respect of any environmental incidents which have occurred;
 - ▶ Monthly and cumulative statistics; and
 - ▶ Any other additional environmental issues which have been identified.

External communication

- 4.2.4 External communication on site typically includes:
- ▶ Communication with interested third parties;
 - ▶ Addressing complaints from members of the public; and
 - ▶ Communication with the media.
- 4.2.5 As outlined in **section 2.1**, the contractor will appoint a PLO to carry out liaison duties with the public and others and will develop the Communications Plan for the Proposed Development. The responsibilities of the PLO are outlined in **section 2.1**.
- 4.2.6 Contact details of the PLO will be made publicly available and advertised clearly.
- 4.2.7 Contact details will be detailed in the provided and detailed displayed on the site notice board. A template for the Contact List is provided in **Appendix B**.

4.3 Incident Procedure

Pollution Incident Control Plan (PICP)

- 4.3.1 The Contractor will develop and implement a PICP which will detail their response in the event of any pollution incident on site.
- 4.3.2 The following measures and information will be included and detailed further in the PICP to manage any pollution incidents and limit adverse effects on the receiving environment:
- ▶ Description of the procedure to be followed in the event of a pollution incident (in accordance with the 'Incident Response' procedure below);
 - ▶ Description of the procedure for the notification of appropriate emergency services, authorities and personnel on the construction site;
 - ▶ Description of the procedure for the notification of relevant statutory bodies, environmental regulatory bodies, local authorities and local water and sewer providers;
 - ▶ Maps showing the locations of local emergency services facilities such as police stations, fire authorities, medical facilities, other relevant authorities, such as the Environment Agency (EA) together with the address and contact details for each service and authority;
 - ▶ Contact details for the persons responsible on the construction site for pollution incident response; and
 - ▶ Contact details of a competent spill response company which can be contacted at short notice for an immediate response.
- 4.3.3 As part of the PICP, access to the following will be ensured:
- ▶ Site Drainage Strategies and Emergency Flood Response Plans are available on site and are kept up-to date; and
 - ▶ Staff competence and awareness in implementing plans and using pollution response kits.

Incident response

- 4.3.4 All incidents associated with the construction of the Proposed Development, including environmental incidents and non-conformance with the CEMP, will be reported and investigated.
- 4.3.5 The following procedure will be followed in the event of an incident and will be detailed further in the PICP:

- ▶ Works will cease;
- ▶ The Contractor Project Director (CPD) and CEM will be contacted, the Land Officer will be contacted if on private land, for grantor liaison;
- ▶ The size of the incident will be assessed;
 - ▶ If the incident is controllable by staff on site, remedial action will be taken immediately in accordance with the PICP;
 - ▶ If the incident cannot be controlled by the staff on site, emergency assistance will be sought;
- ▶ The appropriate enforcing authority will be contacted and informed, including:
 - ▶ The Environment Agency (EA) for incidents potentially affecting rivers, groundwater and major emissions to atmosphere;
 - ▶ The local sewerage undertaker for incidents affecting sewers;
 - ▶ The Local Authority Environmental Health Department for incidents that could affect the public; and
 - ▶ The Food Standards Agency for incidents that have the potential to affect food through deposition on crops or land used for grazing livestock.
- ▶ The CPD and CEM will instigate an investigation into the occurrence of the incident;
- ▶ The findings will be sent to the appropriate enforcing authority where necessary; and
- ▶ An action plan will be prepared to determine why the incident occurred and whether any modifications to working practices are required to prevent a recurrence. If necessary, the CEMP and SHE Plan will be updated (and any other plans as appropriate) and all workers will be notified.

4.3.6 Lessons learnt shall be fed back to site staff through safety and environment briefings and used by the CEM to amend procedures and update the CEMP accordingly.

Incident response training

- 4.3.7 Emergency procedures shall be tested monthly by the CEM. Examples of procedures will include:
- ▶ The names and 24-hour contact details of all emergency response personnel and emergency services;
 - ▶ The procedures for reporting and documenting an emergency incident;
 - ▶ Personnel responsibilities during an emergency incident; and
 - ▶ The location of on-site information on hazardous materials and spill containment materials.

4.4 Health and Safety

4.4.1 RiverOak is committed to ensuring the health and safety of persons working on projects and the protection of the environment is maintained in accordance with the Construction (Design and Management) Regulations 2015 (CDM)⁴ and the principles and philosophy behind them.

4.4.2 In accordance with health and safety legislationⁱ, the contractor will prepare a Construction Phase SHE Plan prior to construction works commencing.

ⁱ The Management of Health and Safety at Work Act 1999

- 4.4.3 The SHE Plan will be prepared for each element of the Proposed Development, including construction work. The Plan will ensure that adequate arrangements and welfare facilities are in place to cover:
- ▶ The safety of construction staff;
 - ▶ The safety of all other people working at or visiting the construction site;
 - ▶ Overall compliance with health and safety legislation, approved codes of practice and industry best practice;
 - ▶ Emergency procedures being defined and adopted; and
 - ▶ Appropriate training and information being provided to personnel.
- 4.4.4 The contractors' Construction Phase SHE Plan will be reviewed by RiverOak to ensure it meets CDM 2015 prior to construction commencing. The SHE Plan will be managed, implemented and updated as necessary through the duration of the Proposed Development by the CPD.
- 4.4.5 All staff, site visitors and delivery drivers will receive a relevant project induction by the contractors to ensure they are aware of site hazards and health, safety and environmental management requirements. Site staff will be briefed daily by the contractors prior to work commencing. Site-specific risk assessments will be carried out to ensure the risk remains relevant. The contractors will be required to carry out audits and inspections throughout the Proposed Development in accordance with **Section 4.1** of this CEMP.

Risk assessments

- 4.4.6 All activities undertaken on site shall be subject to a risk assessment. Risk assessments will be undertaken by trained staff following an approved procedure which will:
- ▶ Identify the significant environmental and Health and Safety impacts that can be anticipated;
 - ▶ Assess the risks from these impacts;
 - ▶ Identify the control measures to be taken and re-calculate the risk;
 - ▶ Report where an inappropriate level of residual risk is identified so that action can be taken through design changes, re-scheduling of work or alternative methods of working to reduce the risk to an acceptable level;
 - ▶ The results of risk assessments and their residual risks are only considered acceptable if: the severity of the outcome is reduced to the lowest practical level; the number of risk exposures are minimised; all reasonably practical mitigating measures have been taken and the residual risk rating is reduced to a minimum; and
 - ▶ The findings of the risk assessment and the necessary controls will be explained to all operatives before the commencement of the relevant tasks using an instruction format agreed with the CEM.

4.5 Waste Management

- 4.5.1 Waste material will be generated at all stages of the construction process. Construction waste will arise from the following key aspects of the Proposed Development:
- ▶ Demolition of existing buildings and infrastructure (including the ATC Tower; air freight facility, fire station, maintenance hangar and passenger terminal);
 - ▶ Removal of the existing fuel farm;
 - ▶ Excavation and earthworks for preparation of foundations; and

- ▶ Construction of new buildings (ATC Tower; expanded cargo facilities, larger fire station, additional maintenance hangars and a new passenger terminal); runway refurbishment; asphalt pavement (access, storage and parking); concrete pavement (taxiway and aprons); and airport related business development (in the 'Northern Grass' area).

4.5.2 Indicative targets for the construction of the Proposed Development are to achieve an 87% diversion of waste from landfill and 62% re-use of materials within the site.

4.5.3 The bulk of the imported material will be hardstone for asphalt and Pavement Quality Concrete, in addition to sands and gravels for use in the lower layers in the aircraft pavements and drainage. Approximate quantities of the main materials required for the construction of the Proposed Development during Construction Phase 1 are given in **Table 4.2** below.

Table 4.2 Construction Materials

Material	Quantity
Aggregates for pavement construction	400,000 tonnes
Fill for earthworks	300,000m ³
Ready mixed concrete	10,000m ³
Asphalt	75,000 tonnes
Building construction	12,000 tonnes
Miscellaneous	10,000 tonnes

4.5.4 RiverOak and the contractors are responsible for managing waste arising from all activities to prevent pollution and to meet or exceed legal requirements⁵.

4.5.5 RiverOak will prepare an Outline Waste Management Plan (OWMP). The contractors will prepare and submit a Site Waste Management Plan (SWMP) to RiverOak to include their associated works. It is advised that further engagement is undertaken with Kent County Council, as the waste disposal authority when preparing these documents.

4.5.6 It is anticipated that the following will be considered for the construction phase.

Construction phase waste

4.5.1 Earthworks construction waste could be minimised by balancing the cut and fill operations for the new aircraft cargo stands and warehousing plus utilising any low areas on the grassed area including the 'Northern Grass' area. At this stage, there is insufficient information to determine the existing earthwork materials' suitability as an engineering fill material underneath the aircraft pavements.

4.5.2 A complete geotechnical site investigation, leading to a detailed earthworks strategy, will precede any permanent earthworks operation.

4.5.3 Demolition arisings, where possible, will be recycled for use on site. This includes the material from the existing taxiways and apron stands that will be removed.

4.5.4 Wrapping and packing will be returned to the supplier.

4.5.5

It is recommended that good practice segregation of waste is followed during the construction phase of the development. Sufficient space should be allowed to allow segregation of demolition, construction and excavation wastes. However, the location will be dependent on constraints in the working area of the site. It is expected that the following principles would apply:

- ▶ Recyclables – Waste storage receptacles/areas should be clearly marked to promote source segregation and inhibit contamination. A waste stream colour coding system could be employed to aid the successful segregation of waste at source. This can take the form of different coloured signs or bins or skips indicating which waste stream can be accepted in each receptacle/area. The Institution of Civil Engineers (ICE) developed a generic colour coding scheme for the construction industry; it is suggested that this system could be used during construction of the development. Containers should be fit for purpose and of a suitable durable construction for use. Prior to leaving the site containers/vehicles shall be sheeted and secured to prevent emission of particulates and dust.
- ▶ Food waste – If a site construction compound will include a canteen where food is produced, prepared or sold then food waste may also be segregated. Bins would need to be provided for the recyclables mentioned above, plus food if sufficient quantities are produced.
- ▶ Residual waste – If residual waste is to be landfilled then testing should be carried out to ensure that demolition or excavation materials are given the correct Waste Acceptance Criteria (WAC) classification, and are disposed of correctly as inert non-hazardous waste. A full record must be maintained of all materials that are removed from the site.
- ▶ Hazardous waste – Any hazardous waste generated as part of demolition, excavation or construction activities needs to be segregated from other waste streams to prevent cross-contamination, and suitable containment is required to provide storage and onward transport, according to the type of hazard (e.g. bunded storage for liquids). Hazardous waste should be disposed of correctly using suitable registered waste carriers and facilities for hazardous waste. A full record must be maintained of all hazardous waste materials that are removed from the site.

4.6 Security

4.6.1

The construction site will be controlled in accordance with the statutory duty to prevent unauthorised access to the site. Site-specific assessments of the security and trespass risk will be undertaken at the site and appropriate control measures implemented. The control measures are likely to include:

- ▶ Consultation with Kent Police on security proposals for the site with regular liaison to review security effectiveness and response to incidents; and
- ▶ Immobilisation of plant out of hours, removing or securing hazardous materials from site, securing fuel storage containers and preventing unauthorised use of scaffolding.

4.7 Welfare

4.7.1

No living accommodation will be permitted on the construction site. Onsite welfare facilities will be provided for all site workers and visitors. Welfare facilities will be kept clean and tidy.

4.8 Pest Control

4.8.1

The risk of infestation by pests or vermin will be reduced by implementing appropriate storage and regular collection of putrescible waste. If infestation is found, removal and prevention measures will be implemented promptly in consultation with the Ecological Clerk of Works (ECOW) to ensure that no protected species is harmed as a result. Any pest infestation of the construction site will be notified to the Local Authority as soon as is practicable.

4.9 Invasive Species Management

- 4.9.1 There is a need to ensure that the Proposed Development does not result in contravention of the legislation relating to invasive species management.
- 4.9.2 The spread of these invasive species would be prevented by the implementation of best practice measures following EA guidelines, thus avoiding contravention of the legislation.

4.10 Unexploded Ordnance

- 4.10.1 Risk assessments will be undertaken prior to each stage of construction commencing for the possibility of unexploded ordnance being found within construction areas. These will be used to specify safe working requirements, which may include advance magnetometer surveys at piling locations and appropriate training for site operatives. An unexploded ordnance specialist will be available on-call for any works in high risk areas.
- 4.10.2 An Emergency Response Plan for unexploded ordnance will be prepared by the contractors and will be followed to respond to the discovery of unexploded ordnance. This will include notifications to the relevant local authorities, emergency services, residents and businesses.

4.11 Utility Works

- 4.11.1 Appropriate plans and schedules will be provided by RiverOak to the contractors identifying all known utility infrastructure and any proposed diversions. Where changes to utility infrastructure cannot reasonably be avoided, the contractors will agree arrangements with RiverOak and the owner of the utility equipment for it to be relocated.

4.12 Consents and Licenses

- 4.12.1 The ES contains details of the consents and licences RiverOak currently believes will be required to construct the Proposed Development that will be obtained outside of the DCO process.
- 4.12.2 A Consents Register will be maintained by the CEM which will document all existing consent conditions, record all new applications made and the status of the applications.

4.13 Legal and Other Requirements

- 4.13.1 A Register of Legal and Other Requirements will be maintained in the CEMP. This will include information relevant to the Proposed Development.
- 4.13.2 A draft Register of Legal and Other Requirements can be located in **Appendix C**.

5. Environmental Management and Construction Principles

5.1 Objective

- 5.1.1 This Chapter of the CEMP provides an overview of the environmental measures that will be implemented during the construction of the Proposed Development to avoid, reduce or compensate for adverse effects as identified in the ES.

5.2 Air Quality

Objective

- 5.2.1 To undertake the construction of the Proposed Development whilst minimising emissions of dust and other pollutants to avoid effects on air quality.

Potential effect and environmental measures

- 5.2.2 The following potential effects and associated environmental measures to be incorporated during the construction phase are outlined in **Table 5.1**.

Table 5.1 Air Quality Measures to be incorporated during the Construction Phase

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
Construction Phase		
Local road network	Dust soiling of the local road network as a result of trackout of dust and mud from vehicles entering and leaving the site during the construction phase.	The contractor will produce and implement a Dust Management Plan (DMP); this will include details of measures to identify and reduce the risk, monitoring any dust and identify appropriate clean-up measures. Monitoring will be agreed with the Local Authority in accordance with best practice for construction projects. This will include use of dust gauges at suitable residential receptors. Osiris monitoring of Particulate Matter (PM) may be used during more intense periods of construction activity (e.g. the initial construction period in the run-up to opening). Measures will include, but are not limited to the following: • The use of wheel wash facilities; • Covering of all loads entering/leaving the site, • Use of water-assisted dust sweeper(s); • Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable; • Record all inspections of haul routes and any subsequent action in a site log book; and • Where practicable, hard surfaced haul routes (e.g. trackways) will be installed, which are regularly cleaned.
Human health and	Potential effect on human health and ecological receptors from dust during the construction phase.	The contractor will produce and implement a DMP, this will include details of measures to identify and reduce

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
ecological receptors		the risk, monitoring any dust and identify appropriate clean-up measures. Measures will include, but are not limited to the following: • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place; • Locate stockpiles away from site boundary/receptors; • Cover or dampen down stockpiles; • Implement stockpile maintenance / management; • Removal of dusty materials from site as soon as practicably possible; • Where practicable, only remove the cover in small areas during work and not all at once; • Stockpile surface areas will be minimised (subject to health and safety and visual constraints regarding slope gradients and visual intrusion) to reduce area of surfaces exposed to wind pick-up; • Where practicable, windbreak netting/screening will be positioned around material stockpiles and vehicle loading/unloading areas, as well as exposed excavation and material handling operations, to provide a physical barrier between the Site and the surroundings; and • Ensure site machinery is well maintained and in full working order.
Human health and ecological receptors	Potential effect on human health and ecological receptors from air quality effects from Non-Road Mobile Machinery, and vehicles during the construction phase.	The contractor will implement measures to reduce or limit air quality effects during the construction phase of the Proposed Development. This includes, but is not limited to the following: • Avoiding the use of diesel or petrol-powered generators and use mains electricity or battery-powered equipment where practicable; • Ensuring all vehicles switch off engines when stationary - no idling vehicles; • Loads entering and leaving the site with dust generating potential must be covered and wheel washing facilities made available; • Vehicles to comply with site speed limits; • Water assisted sweeping of local roads to be undertaken if material is tracked out of site; • A construction logistics plan will be produced to manage the sustainable delivery of goods and materials; and • Where practicable, hard surfaced haul routes (e.g. trackways) will be installed, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.

5.3 Biodiversity

Objective

5.3.1 To avoid, reduce or compensate for potential adverse biodiversity effects.

Potential effect and environmental measures

5.3.2 The following potential effects and associated environmental measures to be incorporated during the construction phase are outlined in **Table 5.2**.

Table 5.2 Ecological Measures to be incorporated during the Construction Phase

Potential Receptor	Predicted Changes and Potential Effects	Incorporated Measures
Designated sites	Pollution/eutrophication from Site discharges	Discharge of treated water to Pegwell Bay rather than to ground with appropriate monitoring of water quality to ensure quality standard is maintained. The discharge will be regulated under a Water Discharge Activity Permit from the EA.
Habitats	Habitat loss	Compensation through off-Site habitat creation at the c. 36ha land parcel 1362. Habitats will be managed specifically for the biodiversity value to be higher quality than that occurring on-Site.
Potential effects on birds due to damage or destruction of active nests	Legal non-compliance	Any removal of vegetation or buildings with the potential to support nesting birds will, wherever possible, be undertaken outside the bird nesting season (March to August inclusive) to ensure compliance with the <i>Wildlife and Countryside Act (WCA) 1981 (as amended)</i> ⁶ . If any clearance work has to be undertaken during the main breeding season, it will only be undertaken after a qualified ecologist has confirmed that the feature does not support any nesting birds. In view of this, no potential adverse effects are anticipated.
Bats	Disturbance to/loss of foraging, commuting habitat for bats Potential disturbance to roosts, mortality/injury to individuals; habitat loss	A method statement and tool-box talk will be prepared that would include details of pre-construction verification surveys for bats, describing the approach that would be followed to avoid contravening the <i>WCA 1981 (as amended)</i> ⁷ and <i>The Conservation of Habitats and Species Regulations 2010</i> ⁸ . Where required, this would involve obtaining an EPS mitigation licence through Natural England (NE) with respect to development. The method statement will also describe habitat enhancements to be implemented as part of the Proposed Development. Due to the nature of the development much of the Site will be unsuitable for bats once operational with extensive Site and building lighting. Consequently, compensation for foraging/habitat/roost loss and any enhancements (including the installation of bat barns/boxes) are provided off-Site within land parcel 1362.
Breeding birds	Disturbance to/loss of foraging habitat/breeding sites/shelter	Off-Site habitat provision in the c.36ha land parcel 1362 ⁱⁱ for ground nesting farmland birds e.g. skylark and grey partridge. Although the extent of off-Site habitat provision is lower than what is being lost, the habitat provided will be of higher quality. Created habitats, improving the quality of that lost on Site, will have particular species-specific habitat creation measures and management for farmland birds.

ⁱⁱ See Appendix 7.10 of the ES for an extended Phase 1 habitat survey report of land parcel 1362.

Potential Receptor	Predicted Changes and Potential Effects	Incorporated Measures
Reptiles	Kill/injure reptiles	Method statement and tool box talks will be prepared to avoid contravening the <i>WCA 1981 (as amended)</i> ⁹ . Removal of suitable habitat would be designed to avoid the risk of injury to reptiles, through measures such as timing ground works to avoid the reptile hibernation period and the gradual removal of habitat. Any reptile populations in the remaining unsurveyed areas (c.4ha) will be captured and translocated to suitable habitats (e.g. with hibernacula, compost heaps, log/brush piles and basking areas) on Site (south of the existing southern perimeter fence) and off-Site (land parcel 1362).
Terrestrial invertebrates	Disturbance to/loss of foraging habitat/breeding sites	Compensation through habitat treatments on Site (e.g. maintenance of a stressed vegetation community along runway edges by permitting short vegetation to grow on shallow substrate upon runway surface), and habitat creation on-Site south of the current southern perimeter fence and within land parcel 1362. Created habitat will be specifically designed with diverse features to encourage invertebrates (e.g. including features typical of open mosaic habitat).
Barn owl	Disturbance to nesting birds	Wherever possible, construction within 200m of barn owl nest sites will be timed to avoid breeding season (that is March – December inclusive). If this is not possible, nest boxes would be capped outside the breeding season prior to construction and new alternative nest sites will be installed off-Site at sufficient distance to prevent birds using the operational Site.
All	Damage to species through disturbance from noise	Noise control measures are outlined below. During the construction phase these will include maintaining buffer distances to sensitive receptors, use of best technology, dampers on vibrating or noise emitting equipment, timing of works. Operational phase measures are set out in the noise mitigation plan (refer to Appendix 2.2 of the ES).
All	Damage to habitats and/or species through smothering/inhalation from dust	The contractor will produce and implement a DMP this will include details of measures to identify and reduce the risk, monitoring any dust and identify appropriate clean-up measures. Measures will include locating stockpiles away from site boundary/receptors, covering or damping down stockpiles, stockpile maintenance/management, and removal of materials from site.
All	Damage to habitats and/or species caused by changes to air quality arising from Non-Road Mobile Machinery and vehicles during the construction phase	The contractor will include measures to reduce or limit air quality effects during the construction phase of the Proposed Development. Measures will include avoiding the use of diesel or petrol-powered generators and use mains electricity or battery-powered equipment where practicable; ensuring all vehicles switch off engines when stationary - no idling vehicles.

Potential Receptor	Predicted Changes and Potential Effects	Incorporated Measures
All	Damage to habitats and/or species through pollution (terrestrial and aquatic) during construction.	Construction practices will comply with the EA's Pollution Prevention Guidelines with a view to preventing the pollution of ground and surface water. Pollution prevention control measures for water quality issues (including the management of noise and dust) are detailed in further sections of this CEMP and will be implemented during the construction phase to avoid damage to habitats/species.
All	Damage to habitats and / or species as a result of emissions from aircraft movements on the ground and during the Landing and Take Off cycle.	Planning of aircraft arrival and departure scheduling to avoid, where possible, over-long idling, taxiing and hold times. Airfield layout design to minimise times taxiing and holding. Use of FEGP to minimise engine/Auxiliary Power Unit use. Bans on older, dirtier aircraft.

5.4 Freshwater Environment

Objective

- 5.4.1 To comply with relevant statutory provisions including any consents required in respect of the water environment; to protect both the aquatic environment and to avoid unacceptable adverse effects including changes to flow volume, water levels, water quality and watercourse morphology due to construction.

Potential effect and environmental measures

- 5.4.2 The following potential effects and associated environmental measures to be incorporated during the construction phase are outlined in **Table 5.3**.

Table 5.3 Freshwater Measures to be incorporated during the Construction Phase

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
Surface and groundwater	Uncontrolled sediment from the construction process entering the freshwater environment as a potential pollutant.	Site access points will be regularly cleaned to prevent build-up of dust and mud. Earth movement will be controlled to reduce the risk of silt combining with the site run-off. Properly contained wheel wash facilities will be used (where required) to isolate sediment rich run-off. Cut-off ditches and/or geotextile silt-fences will be installed around excavations, exposed ground and stockpiles to prevent the uncontrolled release of sediments from the site. Sediment traps will be required on all surface water drains in the surrounding region. Silty water abstracted during excavations will be discharged to settlement tanks or siltbusters as appropriate. Cleaned run-off will be discharged through the existing foul sewer drains. If sewer capacity is limited

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
		then silty water will be stored and removed from the site by tanker and disposed of at a suitably licensed location. A discharge consent for discharge to foul sewer, detailing volumes and rates of discharge will be agreed with Southern Water (SW) prior to the commencement of works, if necessary. Outfalls into surface waters will be monitored regularly during construction and works halted if pollution is observed. Particular attention will be paid to the outfall leading to Pegwell Bay, where specific measures will need to be designed by the contractor covering all phases of construction and agreed with Natural England, the Environment Agency and all other relevant authorities, prior to the commencement of construction works. The EA will also be consulted to ensure that the water quality discharge licence is varied in accordance with the current design proposals. Stockpiles and material handling areas will be kept as clean as practicable to avoid nuisance from dust. Dusty materials will be dampened down using water sprays in dry weather or covered. Outfalls into surface waters will be monitored regularly during construction and works halted if pollution is observed. Avoidance of the completion of deep boreholes, particularly in the more sensitive parts of the site, with all site investigation boreholes restricted to the minimum depth required to obtain geotechnical data for design purposes. No groundwater level OBHs would be constructed, unless approved by the EA. Dewatering or the placement of flow barriers to manage perched groundwater in the Made Ground during groundworks, so that flow into the underlying Chalk is prevented. Outfalls into surface waters will be monitored regularly during construction and works halted if pollution is observed. • Location of monitoring: any points of surface water discharge from the site. It is assumed within the ES that in Phase 1 all construction water will go to bowser to be taken off site for discharge, and therefore no monitoring will be required. In construction phases 2-4, the ponds will be in use and the discharge from the ponds will be monitored. • Frequency of monitoring: The water quality should be inspected at least on a daily basis at point of outfall for low risk operations, but also in an ad-hoc way to coincide with changes in

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
		construction activities, which could change the outflow water quality profile. There could be a requirement for continuous monitoring (e.g. turbidity, EC) if a particular contaminant were identified in the made ground on site. It should be noted that runoff is largely going to occur from areas of hardstanding due to the high infiltration capacity of the soils / aquifer, therefore works in areas where soils are exposed are not likely to generate runoff. In addition, conditions are relatively dry at Manston and therefore the number of days that runoff is generated will be small, and the number of days that the pump is in operation will also be small. As a result, an event-based monitoring regime may be more appropriate than a continuous regime. The frequency of monitoring should be determined once the detailed construction phasing and dewatering plans have been finalised, as well as the GI works.
Surface and groundwater	Spillages of oils and other chemicals associated with the construction process entering the freshwater environment as a potential pollutant.	Wherever possible, plant and machinery will have drip trays beneath oil tanks / engines / gearboxes / hydraulics which will be checked and emptied regularly and correctly disposed of via a licensed waste disposal operator. Oils and hydrocarbons will be stored in designated locations with specific measures to prevent leakage and release of their contents, including the siting of the storage area away from the drainage system on an impermeable base, with an impermeable bund that has no outflow and is of adequate capacity to contain 110% of the contents. Valves and trigger guns will be protected from vandalism and kept locked when not in use. A PICP will be produced to include response to spillages of oil, which site staff will have read and understood. On-site provisions will be made to contain a serious spill or leak through the use of spill kits, booms, bunding and absorbent material. Personnel will be trained on the use of spill kits, where applicable. The bulk of the existing runways and taxiways will be kept as they afford protection to the adit in Source Protection Zone (SPZ) 1. In order to mitigate against any potential foreign object damage hazard (a concern raised by the Civil Aviation Authority (CAA)), it is proposed to overlay the extended paved area with asphalt as part of the initial construction phase. As this work is within close proximity of the Western Adit the method of working it will be subject to a further detailed assessment to minimise the risk of contamination along the runway edges.

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
		Hazardous liquids will be stored further than 10m from any surface waters or surface water gullies. All other physical work within close proximity of the Western Adit will be potentially restricted (in type, timing and duration), subject to a further assessment.
Surface and groundwater	Pollution incidents resulting from concrete batching and cement products on-site during the construction process.	Any mixing and handling of wet concrete that is required on-site will be undertaken in designated areas outside of SPZ1, and the location and configuration of the plant will be agreed with the EA. A designated area will be used for any washing down or equipment cleaning associated with concrete or cementing processes and facilities provided to remove sediment prior to disposal to foul sewer. Any contaminated soil will be identified by ground investigation prior to construction and either treated on-site and reused, or removed and disposed of off-site by a suitably licensed waste disposal operator. Measures such as cut-off trenches will be put in place to prevent any potentially polluted run-off from within the site entering any excavations.
Groundwater	Intrusive works and boreholes increasing the risk of creating pollution pathways to the underlying aquifer	The requirement for site investigation boreholes increases the risk of creating pollution pathways to the underlying aquifer. All shallow (less than 10m) excavations, trial pits and geotechnical boreholes once completed will be adequately backfilled and sealed. Deeper boreholes will be avoided but if required will be subject to further assessment. No boreholes will be permitted within 100m of the centre line of the Western Adit without a full risk assessment.
Groundwater	Piling increasing turbidity of groundwater at the Lord of the Manor source.	The approach to any on-site piling will be agreed with SW and the EA prior to the commencement of works. Piling in sensitive areas will be avoided. Piling methods will be designed to have a minimum of ground disturbance and will be in accordance with <i>Piling and Preventative Ground Improvement Methods on Land Affected by Contamination: Guidance on pollution prevention</i>¹⁰ and <i>Piling into contaminated sites</i>¹¹.
Water supply / sewage infrastructure	Effects on the functionality of the water supply and sewer infrastructure around the site during the construction phase.	The exact locations of nearby sewers and water supply infrastructure needs to be established by on-site survey prior to demolition works. An appropriate protection system (i.e. temporary support structure, sheet piles, installation of secant piles etc.) must be implemented to minimise any impact to the public sewer network. The piling methodology will be developed considering the

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
		neighbouring utility services. Piling will be avoided in sensitive areas. The water demand for the construction phase will be agreed with SW. Discharge rates from the site will not exceed current sewer capacity, and these rates will be agreed with SW to ensure appropriate storage is provided on site during the construction phase. The EA will be consulted on any changes made to the design of the surface water system.

- 5.4.3 During the re-development of the fuel farm site strict measures will be implemented to ensure that:
- ▶ The existing infrastructure is removed safely to avoid any spillage from any residual fuel on site;
 - ▶ Any site investigation will follow the restrictions set out in Table 5.3 above; and
 - ▶ Any residual ground contamination will be dealt with as set out in Table 5.5 below (Land Quality).

5.5 Historic Environment

Objective

- 5.5.1 To avoid, reduce or compensate for potential adverse effects on historic environment features during the construction phase of the Proposed Development.

Potential effect

- 5.5.2 The works have the potential to affect the historic environment as a result of:
- ▶ Potential direct effects on undesignated and previously unrecorded heritage assets within the Proposed Development site boundary. These effects would arise from the construction phase of the Proposed Development and could include the disturbance or removal of archaeological remains by intrusive groundworks or piling;
 - ▶ Potential direct and indirect effects on the heritage significance of the airport and surviving assets relating to World War One (WWI), interwar, World War Two (WWII) and Cold War uses of the site. These effects could arise from losses or changes to existing heritage assets as a result of the construction of the Proposed Development;
 - ▶ Potential indirect effects on the setting and views of designated and undesignated heritage during the construction phase of the Proposed Development. These effects may arise from the effects of construction activities and equipment such as cranes and the concrete/asphalt batching plants; and
 - ▶ The Proposed Development will safeguard the museums. Kent County Council (KCC) has expressed that the two museums, or new heritage area, retain a view to the airport runway.

Environmental measures

Environmental measures incorporated into the construction phase

- 5.5.3 A summary of the environmental measures that have been incorporated into the Proposed Development in order to avoid, reduce or compensate for potential adverse effects on historic environment features during the construction phases is provided in **Table 5.4**.

Table 5.4 Historic Environment measures incorporated into the construction phase

Potential receptor	Predicted changes and potential effects	Incorporated measure
Non-designated heritage assets of archaeological interest	Disturbance or removal of assets could give rise to loss of archaeological interest. Potential harm to non-designated assets has been assessed in the desk based assessment (Appendix 9.1). The assessment identified potential for assets of national, regional and local significance. Based on topography, the area along and to the south of the ridgeline, along which the runway is located, is identified as being archaeologically sensitive.	Harm or loss of archaeological interest will be avoided or minimised to a degree through flexibility inherent in the masterplanning process following any further investigation and survey that may be required. Disturbance in the areas to the south of and to either end of the runway will be limited to services and lighting. The existing runway, taxiways and areas of hardstanding will be used to minimise further disturbance and intrusive works in the demonstrably sensitive areas, to either end and to the south of the runway, which will be restricted to provision of services.
Historic Landscape Character, designated assets and current heritage uses within the airport boundary	Changes to the layout of the airport arising from the visibility of construction works, demolition and construction work access. Changes to non-designated structures and location of heritage assets within the airport (see Appendix 9.1 for details of assets and Chapter 3: Description of the Proposed Development for changes).	Removing temporary construction features to restore plan and character of airport where possible. Reuse and/or relocation of historic structures where feasible (see Chapter 3: Description of the Proposed Development).

5.6 Land Quality

Objective

- 5.6.1 To avoid, reduce or compensate for potential adverse effects on land quality during the construction phase of the Proposed Development.

Potential effect and environmental measures

- 5.6.2 The environmental measures will include a site investigation to inform the need for additional mitigation within the Proposed Development. The site investigation and associated mitigation measures will be agreed with the regulators, including the EA, Thanet District Council (TDC) and other stakeholders as appropriate, and incorporated into the final development as outlined in **Table 5.5**.

Table 5.5 Land Quality Measures to be incorporated during the Construction Phase

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
Humans /Surface (coastal) and ground water	Mobilisation of and exposure to existing potential contamination through soil disturbance, generation of dust during construction activities	The works will be carried out in accordance with relevant <i>Construction Design Management (CDM) Regulations 2015</i> ¹² .

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
		An intrusive investigation will be carried out. The findings of the intrusive investigation will inform the package of measures to be included within the detailed design. Any removal of contamination beneath the existing runway will be risk based and will weigh advantages of contamination removal against removal of the runway. A survey (pre- site preparation survey as defined by the HSE) and removal of asbestos containing materials, and other materials and structures contaminated with asbestos fibres, are expected to be performed by a competent/licensed contractor prior to any demolition works. For site workers and visitors, the potential for exposure to contaminants will be mitigated by the <i>Control of Substances hazardous to Health (COSHH) Regulations 2002¹³</i> and the <i>Management of Health and Safety at Work Regulations 1999¹⁴</i> and controlled through good construction practices such as site induction, good hygiene practices, dust suppression (especially in loading / unloading bays and tracks), requirement for Personal Protective Equipment (PPE) suitable to prevent exposure and/or restricted access during higher risk activities. A watching brief will be in place during demolition (existing buildings and infrastructure), ground and construction works. If unexpected contamination (e.g. from historical site activities) is encountered or suspected, the works will cease in that area and assessment by a suitably qualified land contamination specialist will be made to determine appropriate actions. Soil (soil vapour/ groundwater) samples will be collected and analysed. The risks associated with contamination will be assessed. When required, a remediation strategy will be designed and agreed following consultation with the EA and the relevant local authority as appropriate before implementation. Any construction activity with the potential to produce or release dusts will be assessed and dust avoided where possible through design, or, if unavoidable will be controlled on-site using construction good practice to prevent site users and neighbouring site occupiers being exposed to contaminants. Site access points will be regularly cleaned to prevent build-up of dust and mud. Any imported landscaping material will be clean and free of contaminants and of suitable thickness. Site access points will be regularly cleaned to prevent build-up of dust and mud. Earth movement will be controlled to reduce the risk of silt combining with the site run-off. Properly contained wheel wash facilities will be used (where required) to isolate sediment rich run-off. Cut-off ditches and/or geotextile silt-fences will be installed around excavations, exposed ground, stockpiles to prevent the uncontrolled release of sediments from the site. Sediment traps will be required on all surface water drains in the surrounding region. Silty water abstracted during excavations will be discharged to settlement tanks or siltbusters as appropriate. Cleaned run-off will be discharged through the existing foul sewer drains. If sewer

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
Humans / Soils/ Surface (coastal) and ground water	Exposure to contaminants/ Pollution incidents resulting from spillage due to spillages of oils and other chemicals associated with the construction process	capacity is limited then silty water will need to be stored and removed from the site by tanker and disposed of at a suitably licensed location. A discharge consent for discharge to foul sewer, detailing volumes and rates of discharge will be agreed with SW prior to the commencement of works, if necessary. Stockpiles and material handling areas will be kept as clean as practicable to avoid nuisance from dust. Dusty materials will be dampened down using water sprays in dry weather or covered. The risks from accidental spillages/leaks during handling and storage of chemicals and fuels will be mitigated by the <i>COSHH Regulations 2002</i>¹⁵ and the <i>Management of Health and Safety at Work Regulations 1999</i>¹⁶. Fuel, oil and chemical storage and handling will be minimised in the design of the works and safe working procedures / method statements for handling fuel and minimising the potential for spillage will be put in place, for instance by emptying and properly decommissioning fuel tanks prior to removal. The risks from accidental spillages/leaks during handling and storage of chemicals and fuels will be mitigated by pollution prevention measures and good working practices in accordance with current guidelines. Wherever possible, plant and machinery will have drip trays beneath oil tanks / engines / gearboxes / hydraulics which will be checked and emptied regularly and correctly disposed of via a licensed waste disposal operator. Oils and hydrocarbons will be stored in designated locations outside of SPZ1 with specific measures to prevent leakage and release of their contents, including the siting of the storage area away from the drainage system on an impermeable base, with an impermeable bund that has no outflow and is of adequate capacity to contain 110% of the contents. Valves and trigger guns will be protected from vandalism and kept locked when not in use. A PICP will be produced, which site staff will have read and understood. On-site provisions will be made to contain a serious spill or leak through the use of booms, bunding and absorbent material. The bulk of the existing runways and taxiways will be kept as they afford protection to the adit in SPZ1. In order to mitigate against any potential FOD hazard (a concern raised by the CAA), it is proposed to overlay the extended paved area with asphalt as part of the initial construction phase. See Table 5.3 for work on the runway and close proximity to the Western Adit.
Humans / Buildings and services	Discovery and potentially explosion of UXO associated with construction process	A detailed Unexploded Ordnance (UXO) threat and risk assessment will be carried out in accordance with CIRIA C681 Chapter 5¹⁷ on managing UXO risks prior to any intrusive works such as a ground investigation and the re-development of the site to determine any mitigation required to address this risk. This will be done in a phased approach, with additional assessment carried out as part of the site investigation. Future work relating to UXO will follow CIRIA guidelines.

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
Soils / Ground water	Pollution incidents resulting from the release of contaminants from building materials or construction activities	During the site works tendering process the expected level of environmental control will be included in the tender documents, so that all contractors allow for mitigation measures in their work scope. Suitably qualified and experienced geo-environmental engineers would be used to supervise the ground works. Designated washdown areas outside of SPZ1 with fully contained drainage will be used for plant/vehicles in contact with contaminated soils to avoid contaminants being moved around the site or taken off-site. The foundation excavations will be dewatered by pumping if required. The water will be collected in suitable tanks and held on site for collection by a licensed waste contractor. No water from foundation dewatering operations will be discharged directly to ground. If required, any discharge would occur under the appropriate regulator's consent. The risks will be mitigated through specification of impermeable concrete to the appropriate British Standard to minimise any potential adverse impacts.
Ground and coastal water	Pollution incidents due to creation of pathways for the migration of potential contamination	Suitable foundation design and piling methods will be implemented to prevent migration of any potential/residual contamination and will be agreed with SW and the EA prior to the commencement of works. Piling methods will be in accordance with <i>Piling and Preventative Ground Improvement Methods on Land Affected by Contamination: Guidance on pollution prevention</i>¹⁸ and <i>Piling into contaminated sites</i>¹⁹. Any removal of contamination beneath the existing runway will be risk based and will weigh advantages of contamination removal against removal of the runway. Remediation of potential residual contaminants at the Jentex tank farm will be undertaken, subject to risk-based assessment. For restrictions on intrusive works see Table 5.3 above.
Humans / Groundwater/ coastal water	Pollution incidents due to removal of tanks during construction phase	Safety precautions will be implemented and will include preparing an emergency response plan within the site health and safety documentation. Remediation of potential residual contaminants at the Jentex tank farm will be undertaken, subject to risk-based assessment.
Surface (coastal) and ground water	Pollution incidents resulting from concrete batching and cement products on site during the construction process.	Any mixing and handling of wet concrete that is required on-site will be undertaken in designated areas outside of SPZ1. A designated area, the location and configuration of which will be agreed following consultation with the EA, will be used for any washing down or equipment cleaning associated with concrete or cementing processes and facilities provided to remove sediment prior to disposal to foul sewer. Any contaminated soil will be identified by ground investigation prior to construction and either treated onsite and reused, or removed – subject to risk-based

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
		assessment - and disposed of off-site by a suitably licensed waste disposal operator. Measures such as cut-off trenches will be put in place to prevent any potentially polluted run-off from within the site entering any excavations.

- 5.6.3 In addition, the following measures will be implemented during the construction phase:
- ▶ For existing fuel storage decommissioning phase:
 - ▶ All services will be traced;
 - ▶ All fuel lines and tanks will be emptied, cleaned and degassed prior to removal; and
 - ▶ The management of soil contamination will be informed by the site investigation to define and delineate impacted areas.
 - ▶ For new fuel storage commissioning phase:
 - ▶ A commissioning plan will be designed and followed; and
 - ▶ All lines and tanks will be checked by competent people prior to commissioning.

5.7 Landscape and Views

Objective

- 5.7.1 To implement environmental measures so that adverse effects on landscape and visual amenity are avoided, reduced or compensated for as far as practicable during the construction phase of the Proposed Development, as shown in **Table 5.6**.

Potential effect and environmental measures

- 5.7.2 It should be noted that the environmental measures incorporated into the design of the Proposed Development at this stage of design maturity largely take the form of guiding principles and generic measures which have been used to inform the outline design (as is standard practice). These principles are subject to a continuous process of refinement and will be incorporated into a set of Manston Airport Design Principles that will be used to ensure that all elements of the Proposed Development are designed to a high standard.

Table 5.6 Landscape Measures to be incorporated during the Construction Phase

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
Landscape elements: trees within the site boundaries	Potential loss or damage to valued vegetation (including tree roots as a result of construction activity) and screening elements.	Vegetation /tree survey and protection plans considered as part of the design process. Construction activities to be carried out in accordance with <i>BS 5837: 2012 Trees in relation to design, demolition and construction</i>²⁰. Recommendations in order to protect trees and other vegetation which is to be retained. New tree planting to be undertaken to replace that lost. The design of new planting has been located to deliver screening and softening of large-scale built form and is proposed along the southern side of Manston Road

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
		(north of the Cargo Facilities) and around the Aviation Business Park. Further planting is proposed east of Spitfire Way. Typical proposed species are likely to be native and non-berrying so as to reduce bird attraction. The width of the planted buffers along the perimeter of the business park is typically 45m whilst elsewhere it ranges from 25-30m with planting densities at 4m centres in line with recommendations from the CAA.
Landscape character	Direct or indirect effects on valued characteristics, special qualities and character.	Incorporation of enhanced landscape/architectural design, the provision of a landscape masterplan and landscape management to reduce effects of landscape character and ensure that the nature of these effects is neutral or positive as far as possible. The use of building materials, detailing and finish for the roofs and facades of proposed buildings that respond in a positive way to the existing landscape context. However, these details are not yet available so cannot be used to inform the assessment. In terms of overflying and the potential effects on tranquillity, the noise mitigation strategy has been developed in line with the <i>CAP 1520: Draft Airspace Design Guidance</i>²¹.
All visual receptors overlapped by the ZTV within the study area	Changes to existing views, visual amenity and scenic quality: • Introduction of new large-scale features to the view; • Alteration to the landscape character of the view; • Loss of or disruption to existing views of skylines; • Changes to perceptions if movement through increased traffic (including HGV) and air movements; and • Visual effects resulting from light pollution.	The provision of screening vegetation as detailed above around the Aviation Business Park, the southern side of Manston Road (north of the Cargo Facilities) and east of Spitfire Way. Localised bunding offers further visual screening in key locations by raising the ground level for planting. It is anticipated that the design of the buildings will be of high quality and that the design treatment, detailing and materials will be used to mitigate the apparent scale and soften the appearance of the buildings. However, these details are not yet available so cannot be used to inform the assessment.

5.8 Noise and Vibration

Objective

- 5.8.1 To undertake the construction of the Proposed Development whilst avoiding, minimising or compensating for the adverse effects of noise and vibration.

Potential effects and environmental measures

- 5.8.2 The following potential effects and associated environmental measures to be incorporated during the construction phase are outlined in **Table 5.7**.

Table 5.7 Noise and Vibration Measures to be incorporated during the Construction Phase

Potential Receptor	Predicted Changes and Potential Effects	Incorporated Measures	Details
Nearby residential properties and other sensitive receptors arising from construction activities	Noise and vibration from the construction of the Proposed Development and the transport of construction materials.	BPM	The developer will require its contractors to consider mitigation in the following order: - During Phase 1, no construction activity is to take place during the night time period (23:00-07:00). - BPM, including: - Noise and vibration control at source - for example the selection of quiet and low vibration equipment, selecting plant fitted with silencers or appropriate insulation, shutting plant down when not in use, review of construction programme and methodology to consider quieter methods, location of equipment on site, control of working hours, informing local residents of on-going construction activities, the provision of acoustic enclosures and the use of less intrusive alarms (e.g. pink noise reversing alarms, broadband vehicle reversing warnings); and - Screening - for example local screening of equipment, perimeter hoarding or the use of temporary stockpiles. The recommendations of BS 5228 Code of practice for noise and vibration control on construction and open sites parts 1 and 2, will be implemented, together with the specific requirements of this CEMP.
Nearby residential properties and other sensitive receptors arising from construction activities	Noise and vibration from the construction of the Proposed Development and the transport of construction materials.	Noise and vibration management	The effects of noise and vibration from construction sites will be controlled by introducing management and monitoring processes to ensure that BPM are planned and employed to minimise noise and vibration during construction. Contractors will prepare a noise and vibration management plan which will set out these processes. The plan will include management and monitoring processes to ensure as a minimum: - Integration of noise control into the preparation of method statements; - Ensuring proactive links between noise management activities and community relations activities (see Section 5); - Preparing details of site hoardings, screens or bunds that will be put in place to provide acoustic screening during construction, together with an inspection and maintenance schedule for such features; - Preparing risk assessments to inform structural surveys of buildings and structures which may be affected by vibration from construction; - Developing a noise and vibration monitoring protocol including a schedule of noise and vibration monitoring locations and stages during construction of the Proposed Development when monitoring will be undertaken; - Preparing and submitting Section 61 consent applications; - Undertaking and publishing all monitoring required to ensure compliance with all acoustic commitments and consents; and

Potential Receptor	Predicted Changes and Potential Effects	Incorporated Measures	Details
			Implementing management processes to ensure ongoing compliance, improvement and rapid corrective actions to avoid any potential non-compliance.
Nearby residential properties and other sensitive receptors arising from construction activities	Noise and vibration from the construction of the Proposed Development and the transport of construction materials.	Section 61 consents	Contractors will seek to obtain consents from the relevant local authority under Section 61 of the <i>Control of Pollution Act 1974</i>²² for the proposed construction works, excluding non-intrusive surveys. Applications will normally be made to the relevant local authority for a Section 61 consent at least 28 days before the relevant work is due to start. Details of construction activities, prediction methods, location of sensitive receivers and noise and vibration levels will be discussed with the relevant local authority, or authorities, both prior to construction work and throughout the construction period. Prediction, evaluation and assessment of noise and vibration as well as discussion between the Developer and its contractors and the relevant local authority will, by necessity, continue throughout the construction period. Annex 1 of BS 5228 Code of practice for noise and vibration control on construction and open sites parts 1 and 2 provides a flow diagram demonstrating the process of a Section 61 application. The Developer will seek to agree with local authorities a common format and model consent conditions for Section 61 applications or any dispensations and variations to an existing consent. The application for a Section 61 consent will require noise assessments to be undertaken and BPM measures set out to minimise noise associated with construction of the Proposed Development. The Developer's lead contractors will submit the assessment initially to the Developer for review, prior to submission to the relevant local authority. The Developer's contractors will carry out noise (and vibration where appropriate) predictions for Section 61 applications. An assessment of the predicted levels will be carried out with reference to the ES Chapter 12: Noise and Vibration.

5.9 Socio-Economic

Objective

- 5.9.1 To undertake the construction of the Proposed Development whilst avoiding, minimising or compensating for the adverse effects and to enhance anticipated positive effects of the proposed development.

Potential effect and environmental measures

- 5.9.2 The following potential effects and associated environmental measures to be incorporated during the construction phases are outlined in **Table 5.8**.

Table 5.8 Socio-Economic Measures to be incorporated during the Construction Phase

Potential Receptors	Predicted Changes and Potential Effects	Incorporated Measures
Local Population: Individuals of Working Age	Generation of employment opportunities in the construction sector and within airport related industries. Reduction in levels on unemployment within the local area (i.e. Thanet).	Measures to optimise local recruitment during construction, including possible measures to ensure linkages to local training initiatives and/or voluntary agreements relating to local recruitment.
Local Businesses	Disruption to the local road network during construction impacting on employee and customer access. Increase in economic activity as a result of temporary construction workers and further, via influx of passengers using the Proposed Development. Construction activities will lead to an increase in spending in the local economy by contractors and airport employees.	Carefully designed programme of traffic management during construction to minimise disruption. Specific measures are outlined within the Construction Traffic Management Plan (CTMP) appended to the Traffic Assessment (TA). Scope for additional measures to optimise the spending by contractors in the local economy during the construction phase of the Proposed Development, by voluntary measures to place contracts with local firms and purchase from local suppliers.
Tourism	Disruption to the local road network during construction impacting on employee and visitor access.	Carefully designed programme of traffic management to minimise disruption. Specific measures are outlined within the CTMP appended to the TA.

5.10 Traffic and Transport

Objective

- 5.10.1 To undertake the construction of the Proposed Development whilst minimising disruption to public travel and effects on the condition of the highways.

Potential effect and environmental measures

- 5.10.2 The following potential effects and associated environmental measures to be incorporated during the construction phase are outlined in **Table 5.9**.

Table 5.9 Environmental Measures to be incorporated for the Construction Phase

Potential Receptors	Predicted Changes and Potential Effects	Incorporated Measures
Construction		
The users of local roads and the occupiers of land uses fronting roads likely to be affected	Changes in the character of traffic (such as increases in HGVs), as a result of proposed construction traffic. Potential effects on: - Severance; - Driver delay; - Pedestrian delay; - Pedestrian amenity; and - Accidents and safety.	A CTMP will be agreed with KCC prior to construction works commencing. The CTMP would seek to keep construction traffic on the strategic highway network and avoid sensitive routes and local communities in order to minimise impacts on receptors and manage environmental effects. The CTMP will manage the daily delivery profiles and control movements and routing of HGVs through the following measures:

Potential Receptors	Predicted Changes and Potential Effects	Incorporated Measures
		- Traffic routing strategy – ensuring vehicles access the site via the most appropriate route and avoid unnecessary conflict with sensitive areas; - Traffic timing strategy – programme vehicle arrival/departures and working hours to lessen the impact on the highway network; - Temporary signage – in accordance with the Department for Transport <i>Traffic Signs Manual, Chapter 8</i>²³ to inform local road users of construction access points and the presence of HGVs; - Temporary traffic management – provided on approaches to accesses in the form of traffic warning signs, possible reductions in speed limit signs to ensure safe passage of vehicles; - Site accesses designed in accordance with <i>Design Manual for Roads and Bridges 42/95 Geometric Design of Major/Minor Priority Junctions</i>²⁴; and - Staff travel plan – will provide details of how staff will travel to the site by alternative modes in an effort to reduce single occupancy vehicles travelling to the site.

5.11 Climate Change

Objective

- 5.11.1 To undertake the construction of the Proposed Development whilst minimising emissions of Greenhouse gases (GHGs) that contribute to climate change.

Potential effect and environmental measures

- 5.11.2 The following potential effects and associated environmental measures to be incorporated during the construction phase are outlined in **Table 5.10**.

Table 5.10 Environmental Measures to be incorporated for the Construction Phase

Topic Area	Projected Changes and Potential Effects	Incorporated Measures
Construction Phase		
Biodiversity (Chapter 7)	Climate change impacts on vegetation in compensation areas for SPI/red-listed bird species.	To ensure that the conservation status of SPI/red-listed birds of conservation concern is maintained, appropriate habitat, using plant species appropriate for the changing climate, will be created prior to commencement of construction within the c.36 ha compensation site (land parcel 1362) south of the Proposed Development. The arable area within the compensation field will contain 'skylark plots' at a density of 2 per ha.
Biodiversity (Chapter 7)	Climate change impacts on vegetation resilience	The habitat creation will use species of local provenance adapted to local conditions to increase resilience to climate change impacts. In the long-term, monitoring will determine if new native species better adapted and more resilient to climate change are required and management will be amended accordingly.

Topic Area	Projected Changes and Potential Effects	Incorporated Measures
Freshwater Environment (Chapter 8)	Overwhelming of local drainage system in future flooding events.	The EA have agreed under the site drainage strategy that the drainage system will be designed so that there would be no offsite flooding for a 1% Annual Exceedance Probability) AEP event with a 40% climate change allowance (scenario agreed with KCC as Lead Local Flood Authority (LLFA)). All surface water will be captured, attenuated within two ponds, treated and then discharged to Pegwell Bay via an existing pump and outfall.
Land Quality (Chapter 10)	Overwhelming of local drainage system in future flooding events. Contaminated run-off generated by de-icer storage and use enters the groundwater environment as a potential pollutant.	Storage lagoons will be appropriately sized to account for National Planning Policy Framework (NPPF) ²⁵ climate change allowances, to ensure that treatment facilities continue to function.

5.11.3 A summary of the environmental measures that have been incorporated into the development proposals to date in order to avoid, reduce or compensate for potential adverse GHG effects is provided below in **Table 5.11**.

Table 5.11 Rationale for incorporation of Environmental Measures

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
Construction Phase		
Global atmosphere	Potential GHG emissions from vehicles and plant during the construction phase	The contractor will include measures to reduce or limit air quality effects during the construction phase of the Proposed Development. Measures will include avoiding the use of diesel or petrol-powered generators and use mains electricity or battery-powered equipment where practicable; ensuring all vehicles switch off engines when stationary — no idling vehicles.
Global atmosphere	Changes in the character of traffic (such as increases in HGVs) as a result of proposed construction traffic	A CTMP would be agreed with KCC prior to construction works commencing. The CTMP would seek to keep construction traffic on the strategic highway network and avoid sensitive routes and local communities in order to minimise impacts on receptors and manage environmental effects.

5.12 Major Accidents and Disasters

Objective

5.12.1 To undertake the construction of the Proposed Development whilst minimising the potential for accidents and disasters to arise.

Potential effect and environmental measures

5.12.2 A summary of the environmental measures that have been incorporated into the development proposals to date in order to avoid, reduce or compensate for potential adverse accident and disaster effects is provided below in **Table 5.12**.

Table 5.12 Environmental Measures to be incorporated for the Construction Phase

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
Land, surface and ground water (including particular species, designated sites and habitats)	Large accidental spillages of oils and other chemicals (including those associated with firefighting) associated with the construction process, escalation from external or airport based event or natural disaster entering the environment (land or water) as a potential pollutant to cause a major accident.	Fuel, oil and hazardous chemical storage and handling will be minimised in the design of the works and safe working procedures / method statements for handling these substances and minimising the potential for spillage will be put in place. Tanks and stored chemicals will be located away from excavation and high vehicle movements. Oils, chemicals and fuels will be stored in designated locations with specific measures to prevent leakage and release of their contents into water receptors, including the siting of the storage area away from the drainage. Any large quantity of fuel, chemical, oil (including those of waste) will be located away from the SPZ1 area and drainage routes to Pegwell Bay. Risks arising from interaction with the operational airport and its facilities (post Phase 1), including communication and control of temporary changes, will be controlled by good working practices. These may include, but are not limited to the following: • Appropriate waste management, including its segregation, is undertaken; • Site rules are followed by all those on site; • Appropriate training is taken and competency tested; • Risk assessments are completed, considering both operational spillages and sources with major accident/disaster potential; and • All chemicals and flammable products are appropriately stored and contained. Construction risk management processes with risk reduction to ALARP and adoption of inherent safe design approaches for environmental major accidents and disaster hazards. This will include: • Identification of major accident and disaster hazards; • Access consequences and frequency; • Ensure all risk is ALARP or broadly acceptable by review of all hazards, considering additional measures and implementing all that provide benefit without gross disproportion to the cost. All measures should be considered based on hierarchy of control (i.e. prevention through to emergency response, recovery and remediation). Management of Change Procedures to be developed within the Airport Safety and Environmental Management System to support Post Phase 1 construction. The Construction Emergency Plan will incorporate major accidents and disasters and their response arrangements. A SWMP and procedures.

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
		Traffic controls and management with collision barriers will be provided where required (as further outlined in the CTMP and summarised in Section 3.5 and Section 5.10). Historical site risk from previous activities (e.g. UXO and ground instability from tunnelling) minimised prior to construction: Site survey investigations and monitoring programmes will be undertaken to identify any that may be present. If any are found, a plan will be developed for their controlled removal. Secure site with restricted access.
Land, surface and ground water (including particular species, designated sites and habitats)	Structural/equipment/civils collapse associated with the construction process, escalation from external or airport event, or natural disaster on the Proposed Development leading to hazardous substances entering the environment (land or water) as a potential pollutant.	The risks from construction activities will be mitigated by measures determined by a construction risk assessment in accordance with the <i>CDM Regulations 2015</i>²⁶ and good working practices (as outlined above). Adoption of inherent safe design principles in the design plan. Construction risk management with risk reduction to ALARP for environmental major accidents and disasters. Risks arising from interaction with the operational airport and its facilities (post Phase 1), including communication and control of temporary changes, will be controlled by good working practices (as outlined above). The Emergency Plan will incorporate the identified major accidents and disasters and their response arrangements. Management of Change Procedures to be developed within the Airport Safety and Environmental Management System to support Post Phase 1 construction. Traffic controls and management with collision barriers will be provided where required (as further outlined in the CTMP and summarised in Section 3.5 and Section 5.10). Secure site with restricted access. Historical site risk from previous activities (e.g. UXO) and ground instability from tunnelling) minimised prior to construction: Site survey investigations and monitoring programmes will be undertaken to identify any that may be present. If any are found a plan will be developed for their controlled removal.
Populations and their buildings	Serious harm (multiple serious injury or fatality) to people on or off site during construction (e.g. fire, exposure to harmful substances, collision, structural collapse, transport risk). Exposure to natural disasters or escalation of external events (e.g. extreme weather, consequences of seismic events, third party fire, widespread pandemic or urban action) leading to injuries and loss of life.	Equipment and storage measures as outlined for 'Land, Surface and Groundwater' above. Flammable materials and dangerous chemicals will be stored in a secure location, contained and away from populations, and the public. Control of ignition for flammable materials as required under <i>The Dangerous Substances and Explosive Atmospheres Regulations 2002</i>²⁷. Management of major accident hazards through construction risk assessment, in accordance with <i>CDM Regulations 2015</i>²⁸ and good working practices (as outlined above). This will include adoption of inherent safe design principles in the design plan and an Emergency Plan to cover construction activities.

Potential Receptors	Predicated Changes and Potential Effects	Incorporated Measures
		Risks arising from interaction with the operational airport and its facilities (post Phase 1), including communication and control of temporary changes, will be controlled by good working practices (e.g. set out in the Safety Health and Environment (SHE) Plan). Management of Change Procedures to be developed within the Airport Safety and Environmental Management System to support Post Phase 1 construction. Construction risk management processes with risk reduction to ALARP and adoption of inherent safe design approaches for major accidents and disaster hazards to people (set out in the SHE Plan). The Emergency Plan will incorporate the identified major accidents and disasters and their response arrangements. Traffic controls and management with collision barriers will be provided where required (as further outlined in the CTMP and summarised in Section 3.5 and Section 5.10). Secure site with restricted access.
Populations and their buildings	Discovery of historical issues: potential explosion of UXO or ground instability (e.g. revealed tunnelling).	Historical site risk from previous activities (e.g. UXO and ground instability from tunnelling) minimised prior to construction: Site survey investigations and monitoring programmes will be undertaken to identify any that may be present. If any are found a plan will be developed for their controlled removal. Management of hazards through construction risk assessment in accordance with <i>CDM Regulations 2015</i>²⁹ and good working practices in accordance with current guidelines. This will include adoption of inherent safe design principles in the design plan and an Emergency Plan to cover construction activities.
Designated Heritage Assets	Serious damage to designated heritage assets. Potential sources of major accident, including fire and excavation.	Details of specific measures are provided in section 5.5 .



Appendix A

CEMP Review Table

Appendix A – CEMP Review Table

[illegible]

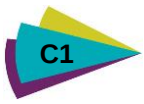


Appendix B

Draft of Register of Contents Legal Responsibilities

Appendix B – Draft Register of Consents and Legal Responsibilities

[illegible]



Appendix C

Emergency Contact Details Template

Appendix C – Emergency Contact Details Template

Name	Company	Person	Contact Number(s)	Contact Address
Project Hotline				
Employer				
Contractor				
Contractor's Project Manager / Supervisor				
Environmental Manager				
Environmental Co-ordinator				
Waste Management Contractor				
Fire Service				
Environment Agency				
Water Company				
Gas Supplier				
Electricity Supplier				
Telephone / Internet Provider				
Other Utilities				
Specialist Clean-up Contractor				

6. References

-
- ¹ Planning Act 2008 <https://www.legislation.gov.uk/ukpga/2008/29/contents>
- ² The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 <https://www.legislation.gov.uk/uksi/2009/2263/note/made>
- ³ The Planning Act 2008 [online] Available at <https://www.legislation.gov.uk/ukpga/2008/29/contents> [Accessed 12/02/2018]
- ⁴ The Construction (Design and Management) Regulations 2015 [online] Available at <http://www.legislation.gov.uk/uksi/2015/51/contents/made> [Accessed 12/02/2018]
- ⁵ The Waste (England and Wales) Regulations 2011 [online] Available at <http://www.legislation.gov.uk/uksi/2011/988/contents/made> [Accessed 12/02/2018]
- ⁵ Water Resources Act 1991 [online] Available at <https://www.legislation.gov.uk/ukpga/1991/57/contents> [Accessed 12/02/2018]
- ⁵ Hazardous Waste (England and Wales) Regulations 2005, (as amended by the Hazardous Waste (England and Wales) Regulations 2009)
- ⁵ Waste Framework Directive 2008/98/EC [online] Available at <http://ec.europa.eu/environment/waste/framework/> [Accessed 12/02/2018]
- ⁶ Wildlife and Countryside Act (as amended) 1981 [online] Available at <https://www.legislation.gov.uk/ukpga/1981/69> [Accessed 12/02/2018]
- ⁷ Wildlife and Countryside Act (as amended) 1981 [online] Available at <https://www.legislation.gov.uk/ukpga/1981/69> [Accessed 12/02/2018]
- ⁸ The Conservation of Habitats and Species Regulations 2010 [online] Available at <http://www.legislation.gov.uk/uksi/2010/490/contents/made> [Accessed 12/02/2018]
- ⁹ Wildlife and Countryside Act (as amended) 1981 [online] Available at <https://www.legislation.gov.uk/ukpga/1981/69> [Accessed 12/02/2018]
- ¹⁰ Environment Agency and National Groundwater and Contaminated Land Centre (2001) Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention [online] Available at <http://www.merseygateway.co.uk/publicinquirydocs/Core-docs/CD-256.pdf> [Accessed 12/02/2018]
- ¹¹ Environment Agency (2002) Piling into Contaminated Sites [online] Available at <http://webarchive.nationalarchives.gov.uk/20140329082414/http://cdn.environment-agency.gov.uk/scho0202bisw-e-e.pdf> [Accessed 12/2/2018]
- ¹² Construction (Design and Management) Regulations 2015 [online] Available at <http://www.legislation.gov.uk/uksi/2015/51/contents/made> [Accessed 12/02/2018]
- ¹³ Control of Substances Hazardous to Health (COSHH) (2002) [online] Available at <http://www.hse.gov.uk/nanotechnology/coshh.htm> [Accessed 12/02/2018].
- ¹⁴ The Management of Health and Safety at Work Regulations (1999) [online] Available at <http://www.legislation.gov.uk/uksi/1999/3242/contents/made> [Accessed 12/02/2018]
- ¹⁵ Control of Substances Hazardous to Health (COSHH) (2002) [online] Available at <http://www.hse.gov.uk/nanotechnology/coshh.htm> [Accessed 12/02/2018].
- ¹⁶ The Management of Health and Safety at Work Regulations (1999) [online] Available at <http://www.legislation.gov.uk/uksi/1999/3242/contents/made> [Accessed 12/02/2018].
- ¹⁷ CIRIA (2009) Unexploded Ordnance (UXO) A Guide for the Construction Industry C681 [online] Available at <https://www.ciria.org/ItemDetail?iProductcode=C681&Category=BOOK> [Accessed 12/02/2018]
- ¹⁸ Environment Agency (2001) Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention [online] Available at <http://www.merseygateway.co.uk/publicinquirydocs/Core-docs/CD-256.pdf> [Accessed 12/02/2018]
- ¹⁹ Environment Agency (no date) Piling into Contaminated Sites [online] Available at <http://webarchive.nationalarchives.gov.uk/20140329082414/http://cdn.environment-agency.gov.uk/scho0202bisw-e-e.pdf> [Accessed 12/02/2018]
- ²⁰ British Standard (2012) BS 5837:2012 Trees in relation to Design, Demolition and Construction – Recommendations [online] Available at

http://www.crawley.gov.uk/pub_livx/groups/operational/documents/plappcomment/ehfp2040459_attachment_1.pdf
[Accessed 12/02/2018]

²¹ Civil Aviation Authority (2017) CAP 1520: Draft Airspace Design Guidance [online] Available at
<http://publicapps.caa.co.uk/modalapplication.aspx?appid=11&mode=detail&id=7818> [Accessed 12/02/2018]

²² Control of Pollution Act 1974 [online] Available at <https://www.legislation.gov.uk/ukpga/1974/40> [Accessed 12/02/2018]

²³ Department for Transport (2009) Traffic Signs Manual: Chapter 8 [online] Available at
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/203669/traffic-signs-manual-chapter-08-part-01.pdf [Accessed 05/02/2018]

²⁴ Highways England (1995) DMRB Volume 6, Section 2, Part 6, TD 42/95 Geometric Design of Major/Minor Priority Junctions [online] Available at <http://www.standardsforhighways.co.uk/ha/standards/dmr/vol6/section2/td4295.pdf>
[Accessed 05/02/2018]

²⁵ DCLG (2012) National Planning Policy Framework [online] Available at
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf [Accessed 12/02/2018]

²⁶ Construction (Design and Management) Regulations 2015 [online] Available at
<http://www.legislation.gov.uk/uksi/2015/51/contents/made> [Accessed 12/02/2018]

²⁷ The Dangerous Substances and Explosive Atmospheres Regulations 2002 [online] Available at
<http://www.legislation.gov.uk/uksi/2002/2776/contents/made> [Accessed 12/02/2018]

²⁸ Construction (Design and Management) Regulations 2015 [online] Available at
<http://www.legislation.gov.uk/uksi/2015/51/contents/made> [Accessed 12/02/2018]

²⁹ Construction (Design and Management) Regulations 2015 [online] Available at
<http://www.legislation.gov.uk/uksi/2015/51/contents/made> [Accessed 12/02/2018]